

IN MEMORIAM

This issue of Studies in African Linguistics is dedicated to the memory of Judy Olmsted Gary, who died in an automobile accident in Cairo, Egypt on 5 March 1981. Those who knew her will remember her optimism and warm personality. African linguistics will remember her for her exemplary work in Bantu languages and, more recently, in Cairene Arabic.

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NASALITY IN GBE:
A SYNCHRONIC INTERPRETATION*

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Extreme claims have been made about nasality in a number of languages that exhibit, at the phonetic level, nasal consonants and nasalized vowels. These claims can be grouped into three categories: (1) the language has both nasal consonants and nasalized vowels as autonomous/underlying phonemes; (2) the language has phonemic nasal consonants only, and nasalized vowels are pure phonetic realizations; and (3) the language has phonemic nasalized vowels only, and nasal consonants are pure phonetic realizations. The language also has, of course, phonemic non-nasal consonants and non-nasalized vowels in all three cases. The three positions have been held with regard to Ewe or Gbe, the subject matter of this paper, by Westermann [1930] and Ansre [1961], Stahlke [1971], and Capo [1977b] respectively. The aim of this paper is to attempt a critical review of these three positions, starting with the presentation of the data. Using three different theoretical approaches (Prosodic, Transformational-Generative, and Taxonomic) the paper argues that in Gbe, nasality is primarily a feature relevant to vowels. Thus, underlying nasalized vowels are recognized, and nasal consonants are treated as predictable variants of non-nasal consonants. Incidentally, syllabic nasals are analyzed as reduced forms of CV syllables.

1. Introduction

1.1. Nasalized vowels in transformational-generative phonology. Many linguists have been concerned with nasality in the phonological theory, or rather phonological theories. It is often true that their theoretical differ-

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ences, reflected in their methodologically divergent approaches, lead them to different conclusions about the status of nasality in specific languages. Thus French has been (traditionally) considered as having phonemic nasalized vowels, until Rohrer [1967] argued that these nasalized vowels should be treated as a sequence of non-nasalized vowel followed by nasal consonant, in the transformational-generative framework. Since then, it seems that all generativists tend to analyze phonemic nasalized vowels, whatever the language as a sequence /VN/. This tendency is encouraged by the search for universals and Ferguson [1963:56, 58] clearly states:

- I. "Every language has at least one Primary Nasal Consonant in its inventory."
- X. "No language has Nasal Vowels unless it has also one or more Primary Nasal Consonants."

The claim therefore is not only relevant for the transformational-generative phonology; it should be held, whatever approach is used. However, in some West African languages, e.g. Akan, Yoruba and Gban, although phonemic nasalized vowels are recognized, some authors (Schachter and Fromkin [1968] for Akan, Courtenay [1968] for Yoruba, and Le Saoût [1973] for Gban) do not take for granted the existence of a "Primary Nasal Consonant". This is also the case with Gbe for which at least three positions have been held.

1.2. Positions held for Gbe. With regard to Gbe ("Ewe"), to be presented in section 2, at least three positions are held. (1) The commonest one, taken by Westermann [1930] and Ansre [1961] for instance, is that "Ewe" has four nasal consonants, namely /m, n, ɲ, ŋ/ and some nasalized vowels. While Westermann [1930:2] claims that all vowels can be nasalized, Ansre [1961:8] remarks that all vowels occur in nasalized form except /e/ and /o/, commenting that [e] and [o] tend to become [ɛ̃] and [õ̃] when nasalized. Working in the framework of taxonomic phonology, apart from setting up phonemic nasal consonants and phonemic nasalized vowels, they nevertheless maintain that all vowels which occur after nasal consonants tend to be nasalized (see Ansre [1961:9]).

(2) The second position to date chronologically is the one taken by Stahlke [1971]. He argues that nasalized vowels in "Ewe" should be analyzed

as a sequence of oral vowel followed by nasal consonant, and he recognizes four nasal consonants, namely /m, n, ɲ, ŋ/. Working in the framework of generative phonology, he does not apparently agree that all vowels are automatically nasalized after a nasal consonant.

(3) The most recent position is argued for in Capo [1977b], that no phonemic nasal consonant exists in Wací and Gen, two dialects of Gbe; only nasalized vowels exist, and they assimilate a specific set of non-nasal voiced consonants to become nasal. Working in the framework of taxonomic phonology, Capo recognizes that the (created) nasal consonants are followed by slightly nasalized vowels. (A similar position is argued for in Rouget [1972], a fact which I became aware of while this paper was in press.)

The present paper aims at critically reviewing the three positions and arguing that the last one is the most tenable.

1.3. Methodology. Three different theoretical frameworks will be used to articulate our argument: Prosodic Analysis, Transformational-Generative Theory, and Structural Linguistics. This basic structure of the paper is defensible in that it examines how problematic data might be handled in various frameworks. In fact, by looking at the data through different theoretical perspectives, one learns more about the data itself and about the theories. One can therefore appreciate when the differences in analysis are simply due to the theoretical frameworks used, and when some aspects of the data are deliberately ignored by the investigator; and I agree with Lyons [1962:198] that "methodological differences among linguists may reflect an inherent difference in languages."

Moreover, apart from Westermann [1930] who deals with "Ewe" as a whole, Ansre's [1961] analysis is based mainly on Pecí, Stahlke's [1971] on Kpándo and Capo's [1977b] on Wací and Gen. We assume that the difference in the treatment of nasality is not related to dialectal differences, and I intend to discuss the problem in a synchronic analysis of Gbe as a whole. However, as will be said in section 2, Gbe is made up of a number of dialects. I have argued elsewhere [Capo 1979b] that dialect information is necessary to determine underlying representation of formatives in different dialects, in a synchronic analysis, especially when there is a problem of interpretation in a

particular dialect. Dealing with Gbe as a whole, I therefore rely on comparative material, without confusing synchronic statements and diachronic ones. (See Capo [1979b] for the relationship between underlying (synchronic) forms and proto-forms).

2. The Data

2.1. Gbe. Gbe is a dialect cluster spoken in the south of the Volta Region in Ghana, the south of the Republics of Togo and Bénin, and also parts of the Ogun and Lagos States in Nigeria. It is most known in linguistic literature as Ewe, although "Ewenists" content themselves with describing only one section, or some elements of that section, the one I call Vhe. In fact, basing myself on pure linguistic as well as sociolinguistic factors, I divide the dialect cluster into five sections, as follows:

- (1) Vhe section, including those dialects that have developed the bilabial fricatives /ɸ/ and /β/ from the Proto-Gbe back labial fricatives */Xʷ/ and */Rʷ/ ; they have also innovated the velar sonorants /ɣ/ and [ŋ] from the Proto-Gbe velar approximant */w/, and have variously merged the low front and the mid non-back vowels of Proto-Gbe into one, either /ə/, or /e/, or /ɛ/. Some of these dialects are: Awlon (Aŋlɔ), Tɔwun (Tɔŋu), Awlongán, Anfóe, Gbin, Pecí ('Peki'), Fodome-ŋli, Be ('Lome'), Hó, Avéno, Avédakpá, Vo, Kpelen, Dayin (Danyi), Agu, Kpesí, Woncé (Nwatye), Adángbe and Wací. Most works dealing with "Ewe", in fact, refer only to this section, or elements of this section.
- (2) Gen section, including those dialects that have developed the voiceless bilabial stop /p/ from Proto-Gbe */Xʷ/ ; they have also merged Proto-Gbe */e/ and */ɛ/ into /e/. Gen dialects are Agóe, Glijí and Anéɔɔ.
- (3) Ajá section, including those dialects that palatalize /t/ and /d/ to [c] and [j] before high vowels, especially the high back ones /u/ and /ü/ ; they have also merged the Proto-Gbe */e/ and */ɛ/ into /e/. They are Tádó, Hwe and Dogbó.
- (4) Fon section, including those dialects that have developed the Proto-Gbe alveolar affricates */ts/ and */dz/, the Proto-Gbe alveolar "aspirates" */th/ and */dh/, and the Proto-Gbe alveolar fricatives */s/ and */z/ into alveolar fricatives /s/ and /z/. They have also retained the Proto-Gbe contrast between /e/ and /ɛ/ ; a typological characteristic of these dialects is that each of them has at most two nominal prefixes: a-, and e- or o-. Some of these dialects are Glexwé, Kpasɛ, Agbóme (the three being referred to as Danxome), Maxí, Gun, Wéme, Setɔ, Kotafon.

- (5) Phla-Pherá section, including those dialects that have the same history as Fon dialects, except that typologically, each of them has at least three nominal prefixes, including ɔ-, i-, ε-, apart from a-. Some of these dialects are Xwla, Xwelá, Ayizo, Gbesi, Movólo, Sáxwe, Se, Tofin, Toli, Alada.

Specific dialects for which nasality has been discussed include Gun [Rouget 1972], Glexwé [Yaï 1969], Gen (Bole-Richard [1976]; and Capo [1977b]), Wací [Capo 1977b], Kpándo [Stahlke 1971]. Other works, such as Sprigge [1967] for Adángbe, Nutsugah [1975] for Kpándo, Pecí, and Awlon, Guédou [1976] for Agbóme, can also be used. Finally, I have field notes on both described and non-described dialects of the continuum.

2.2. Phonetic inventory.

2.2.1. Consonants. An overall view of the Gbe-dialect's consonants is presented in Table 1. All phonetic realizations, including dialect specific ones, are included, and they amount to 44. None of the dialects has the forty-four consonants: rather, some consonants are in systematic correspondences and could be counted as one. We thus have 34 consonants:¹

b	t	d	k	g	f	v	s	z	X	R	kp	gb	y	ɥ
ũ	m	n	l	ĩ	r	ř	ɣ	ŋ	w	ɔ-r	c-ɟ	j-ʒ		
ts-s		dz-z	n-ỹ	ŋw-w̃	X ^w -ɕ-p				R ^w -β					

¹The following clarifications need to be made here:

- (i) in those dialects exhibiting *r*, it is in free variation with *ɔ* in intervocalic position;
- (ii) in many Ajá and Vhe dialects, *ɟ* and *ʒ*, when they occur, are allophones of /s/ and /z/ before high front vowels (and high back ones too for Ajá), but in the Alada dialect spoken at Gbádáglì (Nigeria), they have phonemic status and correspond to /c/ and /j/ in Fon and Ajá dialects [Capo 1979a] (the ones entered below as members of *c-ɟ* and *j-ʒ* refer to those occurring in Alada);
- (iii) *ɥ* and *ũ*, in those dialects that exhibit them, are non-syllabic realizations of /u/ and /ũ/ before /i/ and /ĩ/, and they never occur in syllable-initial position;
- (iv) *r* and *ř* never occur in syllable-initial position, and they are treated as allophones of /l/ after non-grave consonants (see Capo [1977a] for a full discussion of Gbe coronal consonants, particularly *ɔ-n-r-l* distribution);

Table 1. Gbe-dialect consonants: phonetic inventory

		bilabial	labio-dental	laminal dent alveo- lar		apical alveol	alveo-palatal	palatal	velar	uvular	pala	labial velar	uvular
SIMPLE STOPS	vless	p		t				c	k			kp	
	vd	b		d		ɖ		j	g			gb	
	nas	m				n		ɲ	ŋ			ŋw	
AFFRI-CATES	vless				ts		tʃ						
	vd				dz		dʒ						
FRICA-TIVES	vless	ɸ	f		s		ʃ			X			X ^h
	vd	β	v		z		ʒ			R			R ^h
TAP	(vd)					r							
TRILL	oral					r							
	nas					ř							
LATER-ALS	oral					l							
	nas					ļ							
APPROX-IMANTS	oral							y	Y		ɥ	w	
	nas							ỹ			ɥ̃	w̃	

There are still some problems concerning the actual phonetic characteristics of certain segments. In particular, ɖ , n , l , ĩ , and r are described differently by Westermann [1930], Ansre [1961], Yaĩ [1969], Stahlke [1971], Guédou [1976] and Berry [1951].² I have found that they are all apical (post) alveolar, a description independently made by Guédou [1976] and confirmed by Duthie [personal communication]. The sounds X and R are described as velar by Westermann [1930] and Ansre [1961], pharyngeal by Berry [1951] and Stahlke [1971]. I have found that they are uvular, a claim independently made by Sprigge [1967] and Guédou [1976].

2.2.2. Vowels. An overall view of Gbe-dialect vowels is presented in Table 2, together with their feature specifications. It must be noted that [ɔback] → [ɑrounded]. Moreover, none of the individual dialects has the sixteen vowels phonemically; rather, although ɛ independently exists in some dialects, ɛ , ə , and e are in systematic correspondence and the three could be counted as one. Thus we have 14 vowels:

ɪ e-ə-ɛ ɛ a ɔ o u ũ õ-õ ɔ̃ ɛ̃ ɛ̃-ɛ̃ ẽ ɪ

2.2.3. Syllable structure. Gbe has the following syllable structures, at the phonetic level, and in all dialects:

(1) CV (with tone);

(v) the hyphen between two sounds indicates that those sounds are counted as one because dialect realizations of the same Common-Gbe sound, a convention introduced to avoid confusion between Common-Gbe (synchronic) and Proto-Gbe (diachronic), e.g. /X^w-ɸ-p/ in place of Common-Gbe /X^w/ from Proto-Gbe */X^w/.

² ɖ is called "retroflex" by Westermann [1930], Ansre [1961], Guédou [1976], and "retroflexed" by Stahlke [1971: 1 Table 1]. Ladefoged [1968] and Yaĩ [1969], as well as Guédou [1976] and Stahlke [1971] (despite their name for it) have observed that it is apical alveolar. The sound n is described as dental by Westermann [1930], Ansre [1961], and Stahlke [1971]; l (and ĩ) are described as dental by Westermann [1930] and Stahlke [1971], but Yaĩ [1969], followed by Guédou [1976], describes them as apical post-alveolar.

Table 2. Gbe-dialect vowels: phonetic inventory

	i	e	ə	ɛ	a	ɔ	o	u	ũ	õ	õ̃	ã	ẽ	ẽ̃	ẽ̃	ĩ
high	+	-	-	-	-	-	-	+	+	-	-	-	-	-	-	+
low	-	-	-	+	+	+	-	-	-	-	+	+	+	-	-	-
front	+	+	-	+	-	-	-	-	-	-	-	-	+	-	+	+
back	-	-	-	-	-	+	+	+	+	+	+	-	-	-	-	-
nasal	-	-	-	-	-	-	-	-	+	+	+	+	+	+	+	+

(2) C<V (with tone), expanded into two subtypes:

(i) < is either a liquid [l] or [r] and is analyzed as a C element;

(ii) < is a non-liquid realized as [ɣ], but authors do not agree whether it is to be interpreted as a V-element or a C-element (I treat it as a consonant, so that the C<V syllable is now to read the C₁C₂V syllable);

(3) V (with tone);

(4) N̄ (with tone).

To handle our problem of nasality, we shall deal with the commonest syllable type, CV, and eventually the C₁C₂V type. The solution we shall arrive at in this framework will influence our treatment of the syllabic nasals, i.e. the N̄ syllable type to be discussed in section 7.

2.2.4. Tones. An overall view of realized tones in Gbe dialects show four level tones and two contour tones (cf. Sprigge [1967] and Clements [1976]). They are extra-low, low, high, extra-high, rising, and falling. Phonemically, however, each dialect has two tonemes, high and low, and they correspond to themselves across dialects. This paper will refer to these basic tones only, ignoring the actually realized ones. Thus, \acute{V} and \grave{V} will represent high-toned and low-toned vowels respectively.

2.3. The problem. The problem I propose to discuss in this paper arises from some constraints in the distribution of the nasal consonants and the nasalized vowels in all Gbe dialects.

- (1) Some consonants may be followed by both oral and nasalized vowels. They are

t ts-s c-ɹ̃ k kp f s X X^w-ɸ-p
 d dz-z j-ʒ g gb v z R R^w-β

- (2) Certain consonants may be followed by oral vowels only. They are

b ɸ-r y w l γ r ɥ

- (3) Certain others may be followed by nasalized vowels only. (Note that they are either nasal stops, or nasalized liquids and approximants. I refer to them as "nasal consonants"). They are

m n ɹ-ỹ ɲw-Ẃ Ì ɳ ř ũ

(It must be noted that after the nasal stops m, n, ɹ, ɳ, and ɲw, we have slightly rather than heavily nasalized vowels; whereas after the nasalized liquids and approximants, as well as the oral consonants under (1), the vowels are heavily nasalized. For this reason, it becomes sometimes necessary to show that, after the nasal stops, we indeed have nasalized vowels.)

Thus nasal consonants occur only before nasalized vowels, and nasalized vowels do not occur after certain oral consonants. Since there is clearly a phonetic relationship between the nasal consonants and those oral consonants that are not followed by nasalized vowels, I do think that this restriction is not merely accidental, but it shows a phonological peculiarity of the dialect cluster: b and m, ɸ-r and n, γ and ɹ-ỹ, γ and ɳ, w and ɲw-Ẃ, l and Ì, r and ř, ɥ and ũ are in complementary distribution. The problem here is whether despite this complementary distribution, we should recognize underlying nasal consonant phonemes, and furthermore whether we should or should not recognize in addition systematic nasalized vowels or simply treat these nasal consonants as predictable variants or oral forms and posit underlying nasal vowels. To face the problem, we shall use three different approaches, the prosodic, the transformational-generative, and the phonemic.

3. Interpretation within Prosodic Analysis

In the prosodic theory, we distinguish phonematic units, which occupy a specific place within the syllable, and prosodies, which often overlap on the

syllable, the morpheme, the word, or larger units. I have then, considering the data, extracted two prosodies, the domain of which is the syllable: tone and nasality. In Gbe, we can contrast a syllable with high tone with one of low tone.

tó	'father'	~	tò	'lake'	
dó	'work'	~	dò	'sickness'	(Vhe)
sí	'run away'	~	sì	'cut'	(Wací)
àzǐ	'groundnut'	~	àzǐ̃	'egg'	(Fon & Gen)

We can similarly contrast a syllable with nasality and one without nasality.

fá	'to be quiet'	~	fá̃	'to embrace'	
sè	'to hear'	~	sè̃	'to worship'	(Wací)
fò	'to find'	~	fò̃	'to wake up'	(Gen)
sù	'be enough'	~	sù̃	'to plug'	(Wací)

As a matter of notational convention, I use in this section:

+T	"with high tone"
-T	"with low tone"
+N	"with nasality"
-N	"without nasality"

If Gbe uses all the possibilities, we would write a syllable formula like this for the commonest syllable type: $\alpha^T(CV)\beta^N$.³ This formula collapses the following four statements:

³The formula $\alpha^T(CV)\beta^N$ refers to our previous choice of discussing primarily the two-segment syllable. A thorough statement should also include $\alpha^T(C_1C_2V)\beta^N$. It must be mentioned that for the one-segment syllable types, there are some constraints. The V syllable is always oral, thus $\alpha^T(V)^{-N}$ and the N syllable is by definition always nasal. We will discuss the latter specifically in section 7. Note also that, since we are now dealing with the CV syllable type, r/r̃ and q/q̃, which never occur syllable-initially, are *de facto* excluded.

$$\begin{array}{cc}
 +T_{(CV)+N} & -T_{(CV)+N} \\
 +T_{(CV)-N} & -T_{(CV)-N}
 \end{array}$$

We would then list the following phonematic units:

$$\begin{array}{l}
 C = \left\{ \begin{array}{l} t \quad ts-s \quad c-ʃ \quad k \quad kp \quad f \quad s \quad X \quad X^W-\text{ʃ}-p \\ d \quad dz-z \quad j-\text{ʒ} \quad g \quad gb \quad v \quad z \quad R \quad R^W-\beta \end{array} \right. \quad b \quad \text{d}_r \quad y \quad l \quad w \quad \gamma \\
 V = \quad i \quad e-\text{ə}-\text{ɛ} \quad \text{ɛ} \quad a \quad \text{ɔ} \quad o \quad u
 \end{array}$$

Theoretically then, if the formula $\alpha T_{(CV)} \beta N$ is fully expanded, we should obtain in Gbe $24 \times 7 \times 2 \times 2$ syllables, i.e. 672 syllables. Of course, some of the possible syllables do not actually occur, but the total number of realized syllables with two segments is significantly near this figure.

In this analysis, as can be seen from the listing of the C and the V phonematic units, there are neither underlying nasal consonants, nor underlying nasalized vowels. Yet, there are two classes of C-units:

C₁: those C-units which are phonetically approximately the same, whether the syllable is specified as [+N] or [-N]. They are:

$$\begin{array}{l}
 t \quad ts-s \quad c-ʃ \quad k \quad kp \quad f \quad s \quad X \quad X^W-\text{ʃ}-p \\
 d \quad dz-z \quad j-\text{ʒ} \quad g \quad gb \quad v \quad z \quad R \quad R^W-\beta
 \end{array}$$

C₂: those C-units that are realized [+nasal] if the syllable is specified as [+N], and as [-nasal] if the syllable is specified as [-N]. They are:

$$b \quad \text{d}_r \quad y \quad l \quad \gamma \quad w$$

In this case, we have:

- (a) "oral syllables" with initial $b \quad \text{d}_r \quad y \quad l \quad \gamma \quad w$
- (b) "nasal syllables" with initial $m \quad n \quad \tilde{y}-p \quad \tilde{l} \quad \tilde{\eta} \quad \eta w-\tilde{w}$

Thus it appears that we should write rules stating these realization restrictions, viz. "the phonematic units, voiced bilabial stop, voiced apical (post) alveolar stop, and sonorants are realized as [+nasal] in syllables specified as [+N], and [-nasal] in syllables specified as [-N]." This informal statement needs to be formalized. And to write one rule instead of at least three, it will be useful to assume that these phonematic units form a class. But which

phonetic characteristics do they share together? Some suggestions have been made to which I shall refer later (see section 6). For the time being, I submit that, from my listing of the phonematic units above, the C system uses voicing as a prominent feature. Thus C₁ units are paired in the sense that each voiced consonant has a voiceless counterpart. But C₂ units are all voiced, and none has a voiceless counterpart; they are therefore unpaired. This is the origin of the proposed set feature [paired] in Capo [1976].

It must be stressed here that it is necessary to exclude $m \ n \ p\text{-}\tilde{y} \ \tilde{r} \ \eta$ $\tilde{w}\text{-}\eta w$ as phonematic units because, with this alternative, the number of possible syllables will increase to 840, i.e. with 168 new syllables that never occur. To be more explicit, for the voiced bilabial stop for instance, we would have:

$$\begin{array}{cccc} +T_{(bV)}^{+N} & \sim & +T_{(bV)}^{-N} & \sim & -T_{(bV)}^{+N} & \sim & -T_{(bV)}^{-N} \\ +T_{(mV)}^{+N} & \sim & +T_{(mV)}^{-N} & \sim & -T_{(mV)}^{+N} & \sim & -T_{(mV)}^{-N} \end{array}$$

i.e. /bá/ ~ /bá/ ~ /bà/ ~ /bà/ ~ /má/ ~ /má/ ~ /mà/ ~ /mà/ , to take a concrete example. But instead of the eight possibilities, we have just four ([bá] ~ [bà] ~ [má] ~ [mà]), which clearly indicate that only one C unit is to be retained for both b and m .

To sum up, with the prosodic analysis, we must assume that there are neither C phonematic units marked [+nasal], nor V phonematic units marked [+nasal]; rather, the feature nasality is a prosody that operates within the syllable. Another piece of evidence may be found in Westermann [1930], where we have alternation between a prenasalized consonant followed by an oral vowel, and an oral consonant followed by a nasalized vowel:

$$\begin{array}{lll} [\text{àkágá}] & \text{or} & [\text{àkángá}] & \text{'vulture'} \\ [\text{kàdzè}] & \text{or} & [\text{kàndzè}] & \text{'blood'} \\ [\text{gbàgbà}] & \text{or} & [\text{gbàngbà}] & \text{'antelope'} \end{array}$$

(See Westermann [1930:22] for more examples).

I interpret the last syllable of these words as being underlyingly $+N(ga)^{+T}$, $+N(dze)^{-T}$, and $+N(gba)^{-T}$ respectively, the tone being realized on vowels

all the time but nasality being realized as a vowel feature in the first column and as a consonant feature in the second column. Note that when nasality is to be realized as a consonant feature, the result is that we have a nasal consonant if it belongs to C_2 or a prenasalized consonant if it belongs to C_1 . Let us stress that with C_1C_2V syllable type, the C_2 is also nasalized when the syllable is marked [+N].

[mĩ́ḥ] 'lie down'
 [sřĩ́ḥ] 'learn'
 [zỹḥ] 'lean against' (Wací)

Thus, with our prosody of nasality, the phonological behaviour of the C units leads one to set up two classes: C_1 and C_2 . The set feature being open to investigation, Capo [1976] has proposed that the C_1 elements are characterized by their being [+paired] and the C_2 ones by being [-paired]. Like the C-units, the V-units are always underlyingly oral, but they are all normally realized as [+nasal] or [-nasal] according to the nasality specification of the syllable.

4. Interpretation within Generative Framework

The prosodic approach avoids the discussion of nasality as a segmental inherent feature. It may nevertheless be useful to look at this problem in non-prosodic frameworks. As stated by Robins [1957:193], "It is necessary to make it clear that in developing phonological analysis on prosodic lines, there is no suggestion that phonemic analysis is wrong, invalid or unhelpful."

This section is devoted to the discussion of our problem within the transformational-generative framework. Since this approach has been used by Stahlke [1971], his position will be discussed at length. Our problem can be rephrased in Robins' terms as follows:

"Where a feature belongs in the manner described to a syllable (for example) as a whole, this of necessity involves the phonemicist in saying that at one point in the syllable, say the consonant, the distinction (say) between nasalization and non-nasalization is phonemic or relevant, while the same feature in the vowel, being a constant concomitant of the consonantal feature, must be relegated to non-significance, non-pertinence, or 'redundancy'." [Robins 1957:193]

4.1. Critical review of Stahlke's [1971] position. Stahlke, facing the problem of assigning nasality to V or C elements in the underlying representation, stipulates with regard to the interpretation of the nasalized vowels, "We adopt the VN+ analysis and analyze the vowel system of Ewe as containing only oral vowels at the systematic phonemic level (pp. 64-65)".

4.1.1. Consonants. As far as the C elements are concerned, he recognizes four nasals, namely /m n ɲ ŋ/ without discussing their relationship with /b ɗ y ɣ/. He only discusses at some length l and ɫ̃, arguing that only l exists underlyingly. Concluding his discussion on l and ɫ̃ (pp. 18-21), he states that "there is no underlying ɫ̃ in the lexicon (p.21)" and writes the following regressive nasalization rule:

$$[+sonorant] \rightarrow [+nasal]/___[+nasal]$$

Objectively, this rule not only nasalizes l, but it should also nasalize y, ɣ, and w specified by Stahlke himself as [+sonorant] (see his Table VI p. 38). However, Stahlke does not, apparently, reach this conclusion; he does not even point out that y, ɣ, and w are in complementary distribution with ɲ, ŋ, and ɳ respectively, or, at least, that y, ɣ, and w are not followed by nasalized vowels. In fact, considering the Kpándo data alone, it is the case that all oral sonorants are always followed by oral vowels, and all nasal (sonorants) are always followed by nasalized vowels; the rule nasalizing a sonorant before a nasalized vowel should therefore apply to all oral sonorants. The data in Kpándo, and in Gbe in general, are more complicated in that two non-sonorants, b and ɗ, are not followed by nasalized vowels and at the same time, two nasals having the same articulations as them, m and n, are not followed by oral vowels. I pretend that this case too should be dealt with by writing a rule or two deriving m and n from b and ɗ respectively. Presumably Stahlke [1971] would not agree with this analysis, by objecting that in Kpándo, he does not know of any alternation between b and m and between ɗ and n, since he states (in order to be loyal to his theoretical framework?):

"It is a basic tenet of structural phonology that if two forms are in complementary distribution and are phonetically similar, they are *ipso*

facto members of one phoneme. Fortunately or unfortunately, this claim is neither explicit nor implicit in the theory of generative phonology within which we are working. From a generative point of view, the only time a phonological rule can be considered strongly motivated is when there exists some phonological alternation which must be captured as a generalization by such a rule (cf. Kiparsky, 1968)" [Stahlke 1971:19-20].

I have suggested [Capo 1979b], for my own part that (i) although complementary distribution does not necessarily imply an allophonic relationship, it is a very important basis for the formulation of a P-rule; generative phonology must attribute an *heuristic* value to complementary distribution and limitation in occurrence of certain segments; and (ii) in generative phonology, alternation, instead of being restricted to morphological alternation (inside a speech form), must be extended to mean also dialectal alternation.

4.1.2. Vowels. Having briefly touched upon the nasal consonants, I will now consider and discuss Stahlke's arguments for positing the sequence /VN/ as the underlying representation of [ṽ]. The first argument reads as follows:

"Quite regularly throughout the phonology of Ewe, nasalized vowels are restricted to morpheme-final position. That is, there can be no nasalized vowels in initial or medial syllables of single morphemes" (p.59).

This statement may be true for the idiolect of Mr. Agogo Mawuli (Stahlke's informant), which cannot cover, of course, the whole lexicon of "Ewe". It does not hold for other dialects included in the Vhe section much less for Gbe as a whole. Below are given some disyllabic mono-morphemic verbs that show nasalized vowels within the morpheme.⁴

kpɔ́tɔ́	'be paralyzed' (Gen)	
fà̀nà̀	'mix'	(XɔXɔi of Hohoe)
sú́mó	'worship'	(Wací)

⁴There are at least three types of polysyllabic verbs. If we take the disyllabic ones, we will have (i) the monomorphemic ones; (ii) the di-morphemic ones of verb + verb structure; (iii) the di-morphemic ones of verb + noun structure. In Vhe and Gen dialects, the test to identify the polymorphemic ones from the monomorphemic ones is simple. In the "progressive aspect", the monomorphemic ones accept the "progressive marker" -na/a- only at the end of the second syllable (the entire verb), whereas the polymorphemic ones accept it after the first syllable (the verb proper) and also after

Moreover, only few polysyllabic morphemes exist in Gbe (cf. Ansre's [1961] question 5 on p. 69); it means that in the large majority of Gbe morphemes, the vowel (whether oral or nasalized) occurs by necessity in morpheme-final position, which, incidentally also corresponds to morpheme-initial position. Note that we can talk of medial syllable of a single morpheme only when the morpheme is at least trisyllabic. Thus this argument is not only factually incorrect, it is also invalid and tricky.

The second argument given by Stahlke reads as follows:

"The first consideration to be raised in approaching a problem of this sort is the matter of economy...we have reason to suspect that an analysis of Ewe vowel system which posits fourteen vowels is less than optimal" (p. 60).

Although the economy argument is strong in generative phonology, its definition and interpretation vary from author to author (cf. Hyman [1975]). As a matter of fact, I think that it is more economical to add only one feature and "create" seven vowels, intrinsically in the vowel system, than to add a full consonant, which is, curiously, "unspecified for the oral cavity features involved" (p. 62). Let us take the vowel /ũ/. I will specify it as (i) below, while Stahlke will specify it as (ii):

(i)	$\left[\begin{array}{l} +\text{syllabic} \\ +\text{high} \\ (-\text{low}) \\ +\text{back} \\ +\text{rounded} \\ -\text{covered} \\ +\text{nasal} \end{array} \right]$	(ii)	$\left[\begin{array}{l} +\text{syllabic} \\ +\text{high} \\ (-\text{low}) \\ +\text{back} \\ +\text{rounded} \\ -\text{covered} \end{array} \right]$	$\left[\begin{array}{l} -\text{syllabic} \\ +\text{nasal} \end{array} \right]$
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Both from the point of view of the feature counting (one interpretation) and the structure (another interpretation), my analysis is more economical

the second syllable for verb + verb structure.

Wací examples:

[byó'sè]	→	[byónásè'nà]	(verb + verb: 2 morphemes)	'to ask'
[lè'ci]	→	[lènà'ci]	(verb + noun: 2 morphemes)	'to take one's bath'
[súm'ó]	→	[súm'óná]	(one morpheme)	'worship'
[gbí'dí]	→	[gbí'díná]	(one morpheme)	'to erase'

than Stahlke's; his reference to economy as being opposite to redundancy is rather strange and therefore weak. Moreover, the issue of economy should be raised for the language as a whole (I shall return to it later in 4.2.1.

Another argument given by Stahlke in support of his /VN/ analysis of [Ṽ] is the following:

"In reduplication, when the vowel of the stem is nasalized, it gets copied as an oral vowel" (p. 61).

This reduplicated form is compared with the one that comes from a three-segment stem. It has been observed in Kpándo (and in some other Vhe dialects) that the reduplicative is [C₁V], from [C₁C₂V] stem. Because of this observation, Stahlke intends to say that since the nasality of a [CṼ] stem behaves like the C₂ of a [C₁C₂V] stem, it should be treated as a consonant. He does not mention, however, that structurally, we have /C₁C₂V/ on one hand, and /C₁VC₂/ on the other hand; he does not explicitly say either that we could have /C₁C₂VC₃/, C₃ being the nasal, although he gives an example of [C₁C₂Ṽ], such as srá 'cover' on p. 61. In fact, Kpándo reduplication-rule is not general for Gbe or even for Vhe. Dialects like Wací and Gen indeed copy the nasalized vowel:

<u>Stem</u>	<u>Reduplication</u>		<u>Dialect</u>
zá	→ zázá	'use'	Wací
jǒ	→ jǒjǒ	'fall'	Wací
Rĕ	→ RĕRĕ	'bear'	Gen
zǒ	→ zǒzǒ	'walk'	Gen

Even Agbóme (in Fon section), which does not copy the stem vowel, but introduces a high vowel, has it nasalized if the stem vowel is nasalized. Agbóme reduplication-rule may be formalized as the following for CV stems:

$$\text{RED} \rightarrow \text{C} \begin{bmatrix} \text{V} \\ +\text{high} \\ \text{around} \\ \beta\text{nasal} \end{bmatrix} / \text{---C} \begin{bmatrix} \text{V} \\ \text{around} \\ \beta\text{nasal} \end{bmatrix}$$

zá	→ zǐzá	'use'
Rĕ	→ RĭRĕ	'bear'

f^h → fūf^h 'wake up'
 z^h → zūz^h 'walk'

I would therefore say that the case of Kpándo is peculiar in that the vowel of the reduplicative is always oral; this will be indicated in the reduplication rule as:

$$\text{RED} \rightarrow C_1 \left[\begin{array}{c} V \\ \text{-nasal} \end{array} \right] / _ C(L)V$$

In fact, this rule has been considered as an alternative by Stahlke himself who produces it as Rule 29 on p. 61 but later on rejects it in favour of his rule 27 by stating:

"We can retain the simpler form of the reduplication rule (Rule 27, Capo) and derive the nasality of the final vowel from a morpheme-final nasal consonant" (p. 61).

Rule 27 reads: $\text{RED} \rightarrow C_1 V_1 / _ C_1(L)V_1$
 Rule 29 reads: $\text{RED} \rightarrow C_1 \left[\begin{array}{c} V_1 \\ \text{-nasal} \end{array} \right] / _ C_1(L)V_1$

In retaining Rule 27, Stahlke adds that it should be ordered before the rule of regressive nasalization to ensure that the copied vowel will be oral. Even then, nasalized vowels could occur at the end of the reduplicative, since it is a morpheme, even though a bound morpheme. In sum, this argument based on reduplication is weak for Kpándo and invalid for Gbe as a whole.

The last argument I shall examine is the following:

"In forming participles the regular rule of reduplication applies and the suffix -á is added. If the vowel of the verb root is oral, á assimilates obligatorily in everything but tone to the preceding vowel. .. If the root vowel is nasalized, on the other hand, the assimilation is optional, and furthermore, if -á, does not assimilate, its nasalization is also optional. Thus for βĕ 'smell' the participle can be βéβĕĕ, βεβĕá, or βεβĕá. If /ĕ/ is an underlying segment, there is no obvious reason why an assimilation rule should be optional with it, but obligatory with its oral counterpart" (p. 64).

Again, the statement on participle formation is not universal in Gbe, even in Vhe section. But even though we consider only Kpándo, what we can say is that (i) if "nasalization does not normally move forward across morpheme boundary in Ewe" [Stahlke 1971:64], it is not surprising that -á could re-

main oral after a morpheme ending in a nasalized vowel; (ii) if there were an underlying N before -á, the proof might be, as in French, its (overt) realization in this context, e.g. βεβένά; otherwise, from the generative point of view (phonological alternation), the /VN/ analysis is not strongly motivated but, rather, counter-intuitive; (iii) the only consistent conclusion is that nasalized vowels form a distinct class from oral vowels. Here again, Stahlke's analysis does not seem the most adequate.

I have tried to show, within generative phonology, that the arguments advocated by Stahlke to treat synchronically [Ṽ] as /VN/ are rather weak, if not simply untenable. Therefore the criticisms he has foreseen (pp. 65-69) are fully justified.

4.2. Additional evidence for my analysis.

4.2.1. Economy. Returning now to the economy and simplicity metric, I would like to submit that from the point of view of feature counting, if we consider all aspects of the sound system of the language, whether we treat [Ṽ] as /Ṽ/ or /VN/ would not matter, because we have the same number of distinctive features, whether nasality is relevant primarily in the consonant system or in the vowel system. If we consider the phonemic system, or better the sound system of the language as a whole, and if, following Stahlke, we do recognize underlying nasal consonants, we have to write two morpheme structure statements, that:

- (a) there is no sequence {b, d, γ, γ, l, w}VN, a state of affairs which should be odd, because without motivation;
- (b) there is no sequence {m, n, n-ỹ, ŋ, ń, ŋ^w-w̃}V, a constraint that is apparently unmotivated.

If we do not (as I suggest) recognize underlying nasal consonants, these two morpheme structure conditions are useless. We have only to state a P-rule, assimilatory in nature, saying that:

{b, d, γ, γ, l, w} → [+nasal]/__VN (If we happen to agree with the VN analysis.)

This rule has the form of (32) by Stahlke in that it is a regressive (consonant) nasalization rule, but the two rules are not the same, since Stahlke's

clearly excludes such non-sonorants as *b* and *d*. In fact, Stahlke's rule (32) reads

$$[+\text{sonorant}] \rightarrow [+\text{nasal}] / ___ [+\text{nasal}]$$

My own, assuming that the feature [paired] is accepted, will read

$$[-\text{paired}] \rightarrow [+\text{nasal}] / ___ [+\text{nasal}]$$

This (consonant) regressive nasalization rule should simply apply before the reduplication in Kpando so that the initial consonant of the reduplicative is nasal (except the lateral). Thus, instead of having three classes of consonants,

- those that can be followed by V and VN,
- those that can be followed by V only, and
- those that can be followed by VN only,

our grammar will be simplified if, at the underlying representation, all consonants can be followed by both V and VN, a situation for which we need no statement. A phonological rule will state that /*b d-r y l y w*/ get nasalized into [*m n n-ỹ ã ŋ η^w-w̃*] before /VN/. Although there is no clear intra-dialect morphological alternation that proves the existence of the process, there are dialectal variations that help to arrive at this conclusion in a synchronic analysis:

súmó	(Wací)	súbó	(XóXoi)	'worship'
àní	(Awlon)	àyí	(Fon)	'earth'
níní	(XóXoi)	dídí	(Wací)	'to slip'
ńó	(Gen)	wó	(Agbóme & Glexwé)	'to detect'
dà	(Gen)	dà	(Awlon)	'snake'
gbò	(Gen)	gbò	(Wací)	'to breathe'

The point of my argument is that, synchronically, we can no longer use the /VN/ analysis for [Ṽ], since there is no N, i.e. systematic phonemic nasal consonant in the language. This situation, therefore, obliges us to posit underlying nasalized vowels.

The third point is that there is no need to have a superfluous syllable

structure /C₁VC₂/ where:

- (i) the final C is restricted to nasals;
- (ii) the final C occurs only when there is an initial C (there is no VC syllable although V syllables exist);
- (iii) the final C occurs only after specific initial C's;
- (iv) the final C is always deleted in the phonetic realization.⁵

Here again, the grammar is simplified, in that the statement of the syllable type and the statements about its structural constraints do not appear any longer.

4.2.2. Two supplementary cases. I will now present two supplementary cases for the existence of underlying nasalized vowels as a set different from underlying oral vowels in their phonological behaviour. These are drawn from vowel assimilation patterns shown in Gen on one hand and in Dogbó, Hwe, and Tádó on the other.

(1) *Data from Gen.* Bole-Richard [1976], discussing consonant nasalization, after taking for granted the existence of phonemic nasalized vowels (pp. 33-44) points out an interesting case of vowel assimilation. He correctly ob-

⁵Stahlke [1971:66] is in disagreement with me, for the last statement. He writes indeed:

"It is not the case that final nasal consonants do not occur in Ewe. Westermann [1943] cites the following forms as evidence:

kpàm	'violently'	tàn	'completely'
kpèm	'banging'	kón	'sweet'

In addition to these we have also found the forms kén 'completely'; són 'completely' and àprím 'cannon'."

It seems to me that Stahlke disregards an important characteristic of these nasals in that they are tone-bearing, although he later indirectly resorts to it when he writes (p. 67) that "since nasals are sonorants and will bear the same tone as the syllabic nucleus, it is not surprising that VN and VW sequences will behave similarly with respect to length." In fact, although in most of his examples the tone of the nasal is the same as the one of the preceding vowel, it is the case that in Awlon and other coastal dialects, 'sweet' is kón (with two tones, hence two syllables), that clearly alternates with kónù. These examples are thus dismissed as having final consonant; they should be dealt with in relation to syllabic nasals. It is interesting (and also amazing) to note that Stahlke [1971] is not interested in "syllabic nasals in Ewe". My section 7 is devoted to it.

serves that oral vowels and nasalized vowels undergo different types of assimilation when they are followed by /o/. Thus, for the low central vowels:

- (i) /a/ + /o/ → [ao]
 e.g. /é+sà+ò/ → [èsàò] 'he sold you'
 /é+blá+ò/ → [ébláò] 'he tied you'
- (ii) /ã/ + /o/ → [õ] or [ãõ]
 e.g. /é+kã+o/ → [ékõ] or [ékãõ] 'it's your concern'
 /é+zã+o/ → [ézõ] or [ézãõ] 'he used you'

Thus, phonologically, nasality is a class feature in the underlying vowel system of Gen. Bole-Richard also correctly points out that after nasal consonants, the nasality of the vowels is so weak that it could be treated, theoretically, as the effect of the nasal consonant on an oral vowel; looking, however, at the phonological behaviour of such almost non-nasalized vowels, he rightly indicates that their assimilation rules are the same as the ones of the heavily nasalized ones. Thus

- (iii) /é+ná+ò/ → [énõ] or [énãõ] 'he gave you'
 /é+nã+ò/ → [énõ] or [énãõ] 'he gave you'
 /é+má+ò/ → [émõ] or [émãõ] 'you are used to it'
 /é+mã+ò/ → [émõ] or [émãõ] 'you are used to it'

These examples show that, even though a vowel after a nasal consonant may seem oral, it is basically nasalized. It is then the case that two sets of vowels, nasalized and non-nasalized, exist, but nasal consonants are always followed by nasalized vowels; this constraint is a clue of the questionable status of these consonants in the underlying representation.

(2) *Data from Dogbó, Hwe, and Tádó.* In these dialects, the vowel assimilation rules involving the verb stem followed by the third person singular object pronoun for instance, apply differently when the vowel of the stem is oral and when it is nasalized.

- (a) For the oral set of vowels, when these vowels are followed by /ì/ (the underlying representation of the pronoun), the assimilation rules are:

(i) stem-vowel closing:

$$\begin{bmatrix} V \\ -\text{low} \\ -\text{nas} \end{bmatrix} \rightarrow [+high]/_+ \begin{bmatrix} V \\ +\text{high} \\ -\text{back} \end{bmatrix}$$

(ii) suffixed-vowel lowering:

$$\begin{bmatrix} V \\ +\text{high} \\ -\text{back} \end{bmatrix} \rightarrow [+low]/ \begin{bmatrix} V \\ +\text{low} \\ -\text{nas} \end{bmatrix} +_$$

The results of these P-rules are the following:

/i + i/ → [ii]; /e + i/ → [ii]; /a + i/ → [εε]

/u + i/ → [ui]; /o + i/ → [ui]; /ɔ + i/ → [ɔε]

/qì + ì/ → [qìì] 'bury him'

/qù + ì/ → [qùì] 'eat it'

/sè + ì/ → [sìì] 'hear it'

/kò + ì/ → [kùì] 'laugh at him'

/qà + ì/ → [qèè] 'cook it'

/só + ì/ → [sóè] 'take it'

(b) For the nasalized set of vowels, when these vowels are followed by /ì/ , the assimilation rules are the following:

(iii) Stem-vowel closing:

$$\begin{bmatrix} V \\ +\text{nas} \end{bmatrix} \rightarrow [+high]/_+ \begin{bmatrix} V \\ +\text{high} \\ -\text{back} \end{bmatrix}$$

(iv) suffixed-vowel nasalization:

$$V \rightarrow [+nasal]/[+nasal]+_$$

The results of these P-rules are the following:

/ĩ + i/ → [ĩĩ]; /ɛ̃ + i/ → [ĩĩ]; /ã + i/ → [ĩĩ]

/ũ + i/ → [ũĩ]; /ɔ̃ + i/ → [ũĩ]

/zĩ + ì/ → [zĩĩ] 'push him'

/zũ + ì/ → [zũĩ] 'insult him'

/sè̃ + ì/ → [sĩĩ] 'worship him'

/f[́]s + ì/ → [fú[́]ɪ̃] 'wake him up'

/z[́]á + ì/ → [z[́]fɪ̃] 'use it'

What is worth noticing is that before /ì/

/a/ → [ɛ]; but /ã/ → [ɪ̃]

e.g. /q[́]à + ì/ → [q[́]è[̀]è] 'cook it'

/z[́]á + ì/ → [z[́]fɪ̃] 'use it'

/o/ → [ɔ]; but /õ/ → [ũ]

e.g. /s[́]ó + ì/ → [s[́]ó[̀]è] 'take it'

/f[́]s + ì/ → [fú[́]ɪ̃] 'wake him up'

Thus, on phonological grounds, the nasalized set and the oral set are clearly two distinct classes. Now, when the syllable initial consonant is a so-called nasal consonant and the following vowel is only slightly nasalized (I will not therefore mark it as nasalized in the examples below), it is the case that all vowels become high before /ì/ , i.e. they behave like heavily nasalized vowels:

ná + ì → [n[́]fɪ̃], not *[n[́]é[̀]è] 'give him'

ná + ì → [n[́]fɪ̃], 'give him'

m[́]ó + ì → [m[́]ú[́]ɪ̃], not *[m[́]ó[̀]è] 'force him to drink'

m[́]ó + ì → [m[́]ú[́]ɪ̃], 'force him to drink'

This phonological pattern leads one to the interpretation of the vowels following the so-called nasal consonants as underlying nasalized vowels, and to the questioning of the status of the nasal consonants.

4.3. Conclusion. In this section, I have tried to show that a linguist working in the framework of generative phonology must be embarrassed with Common-Gbe data (cf. section 2.3). From the point of view of economy, he cannot posit both nasal consonants and nasalized vowels, since he will be forced to state **some** strange MSC's. To take a decision, he will resort to dialect information: all dialects show that, with certain consonants, we can oppose nasalized vowels to oral vowels; Kpándo on one hand, Gen on another, Dogbó, Hwe, and Tádó on still another, show that phonologically nasalized and oral vowels constitute two different sets. It becomes more economical, and

even compelling, to derive the syllable-initial nasal consonants from underlying oral voiced consonants by a regressive nasalization, the vowel of the syllable being a nasalized one. At this stage, it becomes contradictory to try to derive synchronically the nasality of the vowel itself from a following nasal consonant restricted to the morpheme-final position and unspecified for the oral cavity features involved; in any case, it would be too costly. On these grounds I have discussed fully Stahlke's position and said that it is not defensible, either because the argument is factually incorrect or because a piece of information is neglected, or because the reference is not made explicit (case of economy for instance), or still because there is internal contradiction in the argumentation (case of the participles, for example). My own position is that, analyzed within the framework of generative phonology, Gbe has synchronically underlying nasalized vowels (and oral vowels), but no underlying nasal consonant. All nasal consonants are derived by a regressive nasal assimilation from the oral voiced consonants /b d̥ y l ɣ w/ , which I suggest are [-paired].

5. Interpretation within Taxonomic Phonemic Analysis

The conclusion arrived at in the last section (4) is equivalent to the one I have arrived at using traditional phonemic theory [Capo 1977b]. This is not surprising, since "a systematic phonemic representation will be equivalent to a taxonomic phonemic one, unless there is good reason to deviate from the latter" [Schane 1973:97]. However, as noted above, Westermann [1930] and Ansre [1961] have different conclusions altogether, viz. Gbe has both nasal consonants (m n ɲ) and nasalized vowels, a position they do not attempt to justify; it is then simply by pointing out the nature of the data that we also point out the weaknesses of the analysis. Two later versions, systematically argued for, have been presented by Yaï [1969] and Bole-Richard [1976] for Fon and Gen respectively.

5.1. On Yaï's analysis. Based on Fon dialects, Yaï's analysis takes for granted the existence of phonemic nasalized vowels and is based on the complementary distribution between b and m , d̥ and n , y and ɲ , and w and Ẃ .⁶ Discussing these consonants, he interestingly arrives at the

⁶Fon dialects do not exhibit ɣ and ɲ ; ĩ has apparently not been

following phonemes:

/m/ and /n/ for [m-b] and [n-d] respectively

/y/ and /w/ for [y-p] and [w-ṽ] respectively

Apparently, this analysis is not consistent because one would expect that the same series be posited as the phonemic forms, viz, either /b d y w/ or /m n p ṽ/. Without any hesitation, Yaï implicitly states that y-p and w-ṽ are represented as orals in their phonemic forms because they are all sonorants, and it is common for oral sonorants to develop nasal allophones in the environment of nasalized vowels. In that he is right. Concerning the stops, he avoids positing the orals, because

- (i) "Nasalized stop" is not a phrase common in linguistic literature (this reason is not made explicit in the dissertation).
- (ii) Fon consonant system is symmetric since each voiceless obstruent has its voiced counterpart (this is explicit); the positing of /b/ (without voiceless counterpart) and /d/ (also without voiceless counterpart) will destroy this symmetry (this is implied in the dissertation).

Unfortunately, Yaï does not discuss at length the implications of his analysis, some of which are that (i) some oral consonants (in fact all sonorants) develop a nasal/nasalized allophone when they occur before nasalized vowels; (ii) some nasal consonants (in fact all) develop an oral allophone when they occur before oral vowels. In fact, it is as if Yaï is after natural class, since now all sonorants have two realizations: those that are basically oral develop nasal/nasalized allophones and those that are basically nasal develop oral allophones. It was then because /b d | y w/ could not fit into a natural class that he did not consistently posit them. For my own part, because in structural phonology it is nasality which is treated as abnormal and in the view of the fact that phonemic nasalized vowels are recognized, I will say that in Fon b-m, d-n, y-p, w-ṽ, l-ĩ are all represented as voiced oral in their phonemic forms.

noticed by Yaï [1969], although it is regularly attested before nasalized vowels.

(ii) On the second statement by Bole-Richard, I will simply object that tonal realization is sensitive to the consonant actually occurring, not to the underlying one. This reason is therefore weak.

5.3. Conclusion. I maintain, therefore, that within structural linguistics one has to acknowledge the existence of phonemic nasalized and oral vowels in Gbe; moreover, the phonemic inventory of consonants must not include any nasal, be it *m* or *n*. This analysis implies that /b d̥-r l y ɣ w/ which have the peculiarity of being marked [+nasal] before nasalized vowels need to be labelled together, as /l y ɣ w/ can be readily referred to as oral sonorants. Since this is the implicit reason that leads both Ya'f [1969] and Bole-Richard [1976] to divide this class into two, with different treatments, I will now discuss their being a natural class.

6. Do b d̥-r l y ɣ w (and r ɥ) constitute a natural class?

6.1 Phonetic features. There is a general tendency, both in Generative Phonology and in Taxonomic Phonology, to define a natural class in terms of phonetic features. However, with regard to the actual descriptions of b d̥-r l y ɣ w, none of the features proposed by Chomsky and Halle [1968], Jakobson, Fant and Halle [1952], Ladefoged [1971, 1975], Williamson [1975] is helpful. It will thus be denied that these segments form a natural class, since the classical definition of natural class reads, "Two or more segments are said to constitute a natural class if fewer features are required to specify the class than to specify any one member of the class" (Hyman [1975: 139], referring to Halle [1962:281-382]).

In such a situation, one alternative is to consider that the consonants are represented as nasals in their phonemic form. Of course, /m n ɲ-ỹ ɿ ŋ ẽ-ŋʷ/ are members of a natural class specified as [-syllabic, +nasal]. In adopting this solution, however, we should distinguish two classes of consonants (after two classes of vowels): the orals and the nasals. Thereafter, a rule should be written indicating that nasal consonants are denasalized when followed by oral vowels, which would be stated

$$\begin{bmatrix} \text{[-syllabic]} \\ \text{[+nasal]} \end{bmatrix} \rightarrow \text{[-nasal]}/\text{---} \begin{bmatrix} \text{[+syllabic]} \\ \text{[-nasal]} \end{bmatrix}$$

Despite Oyelaran's [1970] protest that there is no reason why sounds produced in the nasal cavity "are treated as abnormal, marked, or even subsidiary with respect to those produced in the oral cavity", we are still left with the general feeling that, as far as nasality is concerned, it is its presence which is considered as a mark rather than its absence. This means that between an "oralizing" rule and a "nasalizing" one, the majority of linguists will prefer the nasalizing one. But again, this is not convincing. The real challenge is that, if the denasalization of *m* gives *b*, it should be expected that *n*, *ɲ*, and *ŋ* for instance yield *ɗ*, *j*, and *g* respectively. Actually, however, in Gbe, *ɲ* and *ŋ* are not in complementary distribution with *j* and *g* which indeed occur, but with *ɣ* and *ɣ̃*; we should then need another rule to state this in the grammar.

We may consider again the alternative of our consonants being represented as orals in their phonemic form. We face again the problem of finding a common label for *b* *ɗ-r* *ɣ* *l* *ɣ̃* *w*. It must be noted that the difficulty arises in connection with *b* and *ɗ-r*, all others being approximants or sonorants. Two similar suggestions have been made to me, but I have not found any synchronic justification to adopt them. They are as follows:

(1) *b* *ɗ-r* *ɣ* *l* *ɣ̃* and *w* may be lenis. This suggestion comes from Dr. Dakubu [personal communication], who bases herself on historical evidence drawn from Stewart [1973] and on her own comparative work [Dakubu 1977]. In these works, it is claimed that Common Potou had a lenis/non-lenis opposition for three voiced and three voiceless stop articulations of which Dakubu discusses only the voiced labial and alveolar ones.

Dakubu [1977] notes that Common Potou lenis 'b generally develops to *b* and *m* in Gbe, but fortis *b* develops to *gb* (the latter is only a tentative statement because based on only two Potou items).⁷

⁷Dakubu [1977:432] also observes that Common Potou lenis 'b also corresponds to Modern Potou *v* :

	'small'	'black'
Common-Potou	*'bi	*'bē
Gbe	-ví	vivi-tí

(In fact, *vivi-tí* is peculiar to *Wací* and means 'darkness, night': Dakubu.)

- | | | | | | |
|-----|--------------|-------------|---------|---------|-----------|
| (i) | | 'be cooked' | 'arm' | 'ask' | 'respect' |
| | Common Potou | *'bɔ | *a'bɔ̃ | bisá | bù |
| | Modern Gbe | bí | àbó/àbá | byá/byó | bù |
- (Note that 'ask' and 'respect' forms are Akan forms and are supposed to have lenis 'b' in Common Potou.)
- | | | | | |
|------|--------------|-------------|--------|------------|
| (ii) | | 'excrement' | 'trap' | 'cut down' |
| | Common Potou | *'bɨ | *-'bé | *'bu |
| | Modern Gbe | -mí | -mɔ̃ | mù |
- | | | |
|-------|--------------|---------|
| (iii) | | 'grass' |
| | Common Potou | *-'bì |
| | Modern Gbe | -gbé |

[Dakubu 1977:432]

Dakubu [1977] also notes that Common Potou lenis 'd' generally develops to *q* (and *l*) in Modern Gbe.

		'eat'	'tongue'	'tooth'
	Common Potou	*'di	*á'dé	*á'dú
	Modern Gbe	qu	-qé/-qé/-qé	-quí

Dakubu's observations show conclusively, I think, that Modern Gbe *b* and *q* historically derive from lenis segments, since she and Stewart [1973] think that the lenis/non-lenis opposition is relevant in Proto-Volta-Potou, otherwise known as Western-Kwa, and including Common-Potou, central-Togo, Volta-Comoe, Ga-Dangme, and Gbe languages. My own analysis being synchronic, I cannot term *b* and *q* lenis. True, approximants are lenis. It is also true that, compared to Gbe laminal *-d*, the Gbe apical *-q* is lenis; but I do not find any articulatory basis nor any instrumental evidence to say that *b* in Modern Gbe dialects is lenis. I do think indeed that a phonetic feature should be actually perceptible. In the event of a phonetic feature being underlying, its absence must be explained by a P-rule (assimilation or dissimilation). Moreover, to allow [+lenis] to be the set feature for /*b q y l w ɣ*/, it must be proved that they are the only lenis consonants in the dialect cluster, an undertaking which will encounter a methodological problem with regard to fricatives. It is on these grounds that I am not satis-

fied with the lenis feature; it is at best a historical explanation, not a synchronic one.

(2) b ɔ-r ɣ l ɣ w may be *implosive*. The suggestion that *b* and *ɔ-r* may be the implosives *ɓ* and *ɗ* has been made to me by Dr. Mensah [personal communication]. He bases himself on historical evidence drawn from Williamson [1973], who reports implosives for Proto-Ijọ and Proto-Benué-Congo, and on Hyman [1972], who claims that a nasally released implosive is phonetically impossible. Although Hyman's claim has been proved wrong by Williamson [1973], it is nonetheless agreed upon that nasal implosives are difficult (and therefore liable to simplification) and rare. Williamson herself observes that Proto-Ijọ /*ɓ*/ and /*ɗ*/ developed to *m* and *n* in North-Eastern (N.E.) Ijọ and South-Eastern (S.E.) Ijọ when later in the formative there was a nasal.

	'water'	'waves'	'pull'
Proto-Ijọ	* <i>ɓ</i> ɛndí	* <i>ɗ</i> ɔ̀ŋgò	* <i>ɗ</i> Únú
N.E. Ijọ	<i>m</i> ɛngí	-	nÚnú
W.E. Ijọ	<i>m</i> ĩndí	ɓ̀nÚw̄	nÚnú

[Williamson 1973:118]

If one could argue that Gbe *b* and *ɔ* are related to Proto-Ijọ implosives *ɓ* and *ɗ*, one would have found a common phonetic feature for Gbe *b* and *ɔ* as [+implosive] (which they alone share), and at the same time the six segments will be referred to as [+lenis], since [+implosive] implies [+lenis]. I am not satisfied with this suggestion because Gbe *b* and *ɔ* are not now implosives. Here again, at best this would be a historical explanation but not a synchronic one, and if so, [+implosive] must not be used as a *phonetic* feature.

The present failure to find a common phonetic label for *b ɔ-r ɣ l ɣ w* does not convince me that these segments do not constitute a class. The search for a common phonetic feature should therefore continue. I will, however, attempt to suggest another direction for investigation.

6.2. Non-phonetic features. In an unpublished paper and also in Capo [1976], I argued for three kinds of classificatory features for segments:

(a) At the phonetic level, the linguist uses the "discriminatory features", which belong to the general phonetic category; at this stage, with an impressionistic approach, he notes all the characteristics of the sounds, regardless of the redundant features.

(b) At the phonemic level, he lops off all the redundant features, and from a functional point of view, he selects only the relevant (phonetic) features that distinguish a phoneme from others and implicitly state its similarity with others. These can be termed "distinctive features" proper.

(c) If the linguist continues the description of the language, he may notice that some phonemes behave alike. He will therefore need a label to handle them. I term the features he will deal with at this stage "set features" or "class features". I stress that since it is after the linguist has faced the similar behaviour of certain phonemes that he needs a set feature, he is not obliged to restrict his sources to phonetics, as previous authors have done (cf. Fudge [1972]). He may resort to the history of the language, to a peculiarity of the phonemic system as a whole, or even to an abstraction. This conclusion seems to be in consonance with the point of view of the glossematians, at least with its interpretation as stated by Fudge [1970:88-89]:

"Phonetic properties are not involved at all in the way phonemes are specified, or in the way they are grouped into classes... Just as phonetically determined classes may be labelled by using distinctive features, so classes determined on abstract grounds may be labelled by using non-phonetic features" [emphasis mine, H.C.C.]

Since the problem we are facing is one of class feature, I feel justified in resorting to the consonant system of Gbe and continue to use the feature [+paired], the contrast voiced/voiceless being prominent in the Gbe consonant system. Indeed, a set feature is mainly language-specific.

7. The Treatment of Syllabic Nasals

Throughout the previous sections, I have argued that, whatever the theoretical framework used, Gbe should be analyzed as having no nasal consonants. It must follow that the treatment of "syllabic nasals" as allophones of marginal nasal consonants is to be rejected. I will not, however, take for granted this first conclusion. Rather, I shall consider and discuss all the-

oretical alternatives that offer themselves. Notice first of all that the phonetic syllabic nasals seem restricted to two, $\alpha^T[m]$ and $\alpha^T[\eta]$, and occasionally $\alpha^T[n]$.

[hgbé]	'I refused'	(Fon)
[ékpóm]	'he saw me'	(Gen)
[énu sòm]	'he is hearing'	(Awlon)
[h̀k̀k̀k̀k̀]	'day'	(Wací)
[kéh]	'completely'	(Kpándo)
[kóh]	'corner'	(Avéno)

In a seminar paper at the University of Ibadan, Maddieson discusses four alternatives that I will consider.

(1) *Recognize syllabic nasals as independent phonological units.* For Maddieson himself, this solution "can be automatic only if the language has no syllable-margin nasal consonants and no nasalized vowels." Although the two conditions are not met (since Gbe, without any doubt, has nasalized vowels), Yaĩ [1969] adopts this solution for Fon. Under the heading "the syllabic nasal /N/", he says that "its phonemic identity is established by the fact that it bears a tone, unlike the other nasals." As pointed out by Maddieson, "the appeal seems to be to some principle that the set of phonemes which occurs in syllable-marginal positions must be mutually exclusive with the set of phonemes occurring in syllabic position. This is demonstrably not the best way of dealing with the facts of certain languages." It must be noted in this connection that (1) Yaĩ himself recognizes non-syllabic allophones of both /u/ and /ũ/ which therefore overlap in realization with a distinct syllable-initial phoneme /w/; this means that he could well treat his syllabic nasals as syllabic allophones of non-syllabic phonemes. Apparently Oyelaran [1970], by suggesting that "nasal consonants are continuants", will favour such an analysis, since he states that "we propose that the special circumstances under which nasals may become syllabic are language-specific." (ii) Yaĩ also observes, quite rightly, a complementary distribution of nasalized vowels and syllabic nasals within the word in Fon; on these grounds, he could well treat his syllabic nasals as allo-

phones of one or more nasalized vowels. In fact, there is free alternation between the syllabic nasals and \bar{u} , as in the phonetic realizations of the first person singular subject pronoun:

[h̄ gbé]	~	[ū gbé]	'I refused'
[m̄ bè]	~	[ū bè]	'I hide myself'
[h̄ lɛ kɔ̄]	~	[ū lɛ kɔ̄]	'I turned back'

(Note that the official Fon orthography has 'un' for the spelling of this pronoun.)

What I am doing here is to show that there is no compelling reason to set up an independent phonological unit for syllabic nasals in Fon, nor in Gbe in general. Let us discuss then the other alternatives implied in our criticisms of the first alternative.

(2) *Identify syllabic nasals with non-syllabic nasals.* I have said above that theoretically one could treat syllabic nasals as syllabic allophones of non-syllabic nasals. However, this analysis is only strongly motivated when there is variation between syllabic and non-syllabic forms in the same stem. Such a situation does not occur in Gbe. In this regard, Gbe is very different from Kohumono for which Cook [1969] adopts this solution by noting that

"when a nasal consonant is immediately followed either (a) by another consonant in the same word, or (b) by a word boundary, it is syllabic and has a significant tone associated with it... As the syllabic quality or lack thereof of a nasal is apparently always predictable, there is no need to analyze the syllabic nasals as phonemes separate from the ordinary non-syllabic ones... In case (a) the distinctions among the various phonemes are entirely neutralized; a pre-consonantal syllabic nasal is essentially an archiphoneme. Because this fact is predictable (i.e. no nasal other than this archiphoneme can occur in that position) there is no need to accord the archiphoneme separate phonemic status" (cited by Maddieson).

The Gbe situation is also radically different from Nupe where

"pre-consonantal nasal consonants are syllabic if word initial, non-syllabic elsewhere. ...A nasal consonant which is syllabic initially, e.g. /h̄dò/ 'a certain', will cease to be syllabic and will merely close the preceding syllable, when it forms part of a compound of which it is not the first element: e.g. /h̄dòndò/ -same meaning" (Smith [1967], cited by Maddieson).

There is no motivation, therefore, in Gbe, to treat syllabic nasals as syllabic allophones of non-syllabic nasals. With the data presented above (p. 34), it is the alternative of identifying them with nasalized vowels that is worth discussing.

(3) *Identify syllabic nasals with nasalized vowels.* This solution is attractive on at least two grounds: (i) the complementary distribution of nasalized vowels and syllabic nasals within the word in at least Fon; and (ii) the alternation between syllabic nasals and \bar{u} in at least Fon. With regard to (i), Maddieson suggests that "an analysis in which syllabic nasals are regarded as realizations of the nasalized vowel phonemes seems appropriate." However, it should be noted that the complementary distribution stated by Yaï [1969] is that nasalized vowels are always found in CV or C_1C_2V syllable types, whereas in nouns, syllabic nasals occur in the same position as the nominal prefixes that are generally oral vowels. Yaï himself [personal communication] agrees that only two oral vowels, a and e, function as nominal prefixes in Fon, and that the syllabic nasal does not behave like these vowels in that it is not deleted in compounds.⁸ With regard to (ii), I should say that for the first person singular subject pronoun, we have indeed free variation between the syllabic nasals \bar{u} and $\bar{w}\bar{u}$

[\bar{h} gbé]	~	[\bar{u} gbé]	~	[$\bar{w}\bar{u}$ gbé]	'I refused'
[\bar{m} bè]	~	[\bar{u} bè]	~	[$\bar{w}\bar{u}$ bè]	'I hide myself'
[\bar{h} é kò]	~	[\bar{u} é kò]	~	[$\bar{w}\bar{u}$ é kò]	'I turned back'

It is not therefore obvious for Fon that syllabic nasals are to be identified as nasalized vowels. The same applies to other Gbe dialects. Thus, having considered this solution for Gen, Bole-Richard rightly points out

⁸Here are some examples:

àfò	'foot'	+ atí	'tree'	→	[àfòtí]	'foot'
àgò	'reverse'	+ àsì	'wife'	→	[àgòsì]	'female name'
àgà	'prostitution'	+ èví	'child'	→	[àgàví]	'illegal child'
gbè	'life'	+ òtù	'sign'	→	[gbèòtù]	'life sign'
					not	*[gbètù]

that it is not economical in that it would be in contradiction with the canonical form of "words". For instance, there is no VV noun in Gen, but nouns such as [èh̃] 'day', [àh̃] 'thorn' would have this shape if the syllabic nasal were treated as a nasalized vowel. Indeed, these two examples show that [ŋ] functions as a stem, whereas in general, no V functions as a stem either in Gen or in any other dialect of Gbe. Again this solution does not appear motivated for Gbe.

(4) *Treat the nasality and the syllabicity as separate units.* This solution seems the most adequate for Gbe. The Gbe data allow us to treat syllabic nasals as "reduced syllables containing a nasal (consonant) and a syllabic (i.e. vowel)". For Maddieson, "the most obvious case where this might be appropriate is where an alternation can be observed between nasal + vowel and syllabic nasal", and this is precisely the case in Gbe.

(a) Inside a single dialect, we may observe alternation between a syllabic nasal and a nasal followed by a vowel. On p. 35 are examples from Fon. Some Gen examples are given below.

[é kpóm̃]	'he saw me'
[é kpóm̃ù à]	'did he see me?' (where à is an interrogation marker)
[átètè]	~ [núttètè] 'abscess'
[h̃ gé]	~ [mù gé] 'I have fallen'

Note that, basing himself on examples of this nature, Bole-Richard [1976:70-74] arrives at the same conclusion: that in Gen, syllabic nasals are phonologically CV. Some Wací examples are given below:

[kóh̃]	'corner'	[kóh̃ùà]	'the corner' (where a is the determiner)
[h̃qúf̃]	'remembering'	[é qóh̃ùò]	'he remembers you' (where ò is 'you' and the noun h̃qúf̃ is from the verb qó h̃qú by a general inversion rule)
[h̃kəkè]	'day'	[èh̃ù kè]	'it is daytime'

(b) From one dialect to another it is rare that all have the syllabic nasals in the same "words"; rather, if in one dialect we have a syllabic nasal, it is likely that in another one we have nasal consonant + vowel. For

me, as said above, this is not only an historical evidence, it is also a justification for a synchronic analysis in the dialect exhibiting the syllabic nasals.

[mǎgbé]	(Awlon)	:	:	[hǎgbé]	(Gen)	'back'
[nùkǎ]	(Fon)	:	:	[hǎkǎ]	(Wací)	'front'
[nùkú]	(Fon)	:	:	[hǎkú]	(Wací)	'eye'
[pǎdǎ]	(Kpándo)	:	:	[hǎdǎ]	(Gen)	'sun'
[àmǎgbà]	(Wací)	:	:	[àhǎgbà]	('Ewe')	'leaf'

From these concordant pieces of evidence, I feel it as established that the syllabic nasals in Gbe are reduced forms of plain [N \tilde{V}] syllables, where the \tilde{V} -element has been elided but the tone, being a syllable feature, is retained and shifted to the previous non-syllabic nasal, changing it to a syllabic. This is Bole-Richard's [1976] stand. In my own analysis, however, the [N \tilde{V}] is only an intermediate stage, not the underlying representation (since I do not recognize any nasal consonant), the latter being /CV/. I have pointed out above (see examples on p. 20) that we may have dialectal variation between $+N(CV)\alpha^T$ and $-N(CV)\alpha^T$. One of the logical conclusions is that we may have alternation between $-N(CV)\alpha^T$ and syllabic nasals, and this is precisely the case with the first syllable of the first two examples below and with the last syllable of the third example.

[ftí]	(Wací)	:	:	[wútú]	(Fon)	'because of'
[hǎzǎ]	(Gen)	:	:	[wùzǎ]	(Fon)	'awake'
[pǎhǎ]	(Avéno)	:	:	[pǎhǎ]	(Hwe)	'woman'

At this stage, it is only fair that I add that the determination of the underlying consonant is not automatic. In fact, after the nasal consonant has emerged, it may undergo other assimilation processes, one of which is that the alveolar *n* becomes velar (*ŋ*) when followed by the high back vowel, especially in Avéno.

/qú/	'thing'	→	[nú]	(most dialects	→	[ŋú]	(Avéno))
/qǎ/	'mouth'	→	[nǎ]	(most dialects	→	[ŋǎ]	(Avéno))

Another process may be the homorganic nasal assimilation which is very

strong (almost compulsory) when the following consonant is a velar or a labial, optional in other cases. Thus, in Wací, /bě gbé/ 'I refused' is realized as [mě gbé] or [ŋ gbé]. What I must also point out is that, although all nasalized vowels "create" the nasal consonant in the appropriate /C (C) V/, the syllabic nasal emerges when the vowel is ũ or ẽ. We have only isolated cases of ĩ and ã. Regularly in the phonology of Gbe, ə or e and their nasal counterparts are often elided when in contact with another vowel and may be properly called schwa, the function of which is tone bearing. Since any nasal consonant is potentially tone bearing, the schwa may be elided and the tone transferred to the nasal. In the case of ũ, since it assimilates first the "created" nasal to the velar ŋ, both segments have similar resonance and one of them may be elided. This is precisely what explains the free variation we sometimes have between $\alpha^T(\eta\tilde{u}) \sim \alpha^T(\eta) \sim \alpha^T(w\tilde{u}) \sim \alpha^T(\tilde{u})$.⁹

In sum, the position held in this paper is that syllabic nasals are simply phonetic realizations of the /CV/ syllable in which the vowel is a nasalized one. I derive them through the following steps:

- | | |
|--|-----------------------------|
| 1: underlying representation | $\alpha^T(C\tilde{V})$ |
| 2: regressive nasal assimilation,
if C is [-paired] | $\alpha^T(N\tilde{V})$ |
| (3: velar assimilation when V is ũ | $\alpha^T(\eta\tilde{u})$) |
| 4: vowel deletion, syllabic nasal | $\alpha^T(N)$ |
| (5: homorganicity with the consonant
of the following syllable) | |

⁹This observation, illustrated above p. 35, has also been made by Pazzi [1975:10] who writes:

"Il faut remarquer que la voyelle nasale ũ et la consonne nasale ŋ donnent pratiquement le même son. (On comprend par là pourquoi différents auteurs ont transcrit ce son de l'une ou l'autre manière.)"

Significantly near our solution, the same Pazzi adds:

"Cela peut tout aussi bien s'écrire ηu (...) et c'est la meilleure forme dans les cas où ce son constitue un radical (car tous les radicaux sont formés de consonne plus voyelle)" [Pazzi 1971:10].

Thus the four phonetic syllable types [CV], [CCV], [V] and [N̩] are now reduced to three phonological syllable types: /CV/, /C₁C₂V/, and /V/. It must once more be emphasized that [N̩] has been treated as /CV/ on alternation criteria. We may, however, observe that on distributional grounds, while in /CV/ and /C₁C₂V/ syllable types, the V elements may be underlying [+nasal] or [-nasal], and in the /V/ syllable type /V/ is always [-nasal]. Meanwhile, as shown above, these distributional criteria are not sufficient to treat [N̩] as /V/, because not all oral vowels are attested in the /V/ syllable type.

8. Concluding Remarks

This case study of nasality in Gbe is likely to show that theories are not often as radically opposed as we feel. Thus, using three different theoretical frameworks (Prosodic Analysis, Transformational-Generative Phonology, and Structural Linguistics), I have argued that Gbe should be analyzed without basic nasal consonants. Both within generative phonology and taxonomic phonology, it has been argued that nasality is only relevant in the vowel system, and therefore secondary in the consonant specification. The alternation criterion has also led us to analyze syllabic nasals as reduced forms of /CV/ syllable through [N̩V̩]. It must be concluded that data and theories are in a dialectical relationship, but instead of data being "cooked" by the theory, we should be prepared to modify our theory in order to account for all aspects of the data.

The second conclusion that may be drawn from our discussion is that, since we are far from having described all the natural languages of the world, the most established ideas should still be considered as powerful hypotheses, not transcendental truth. In the case of nasality, two of the universals proposed or stated by Ferguson [1963] have been falsified with evidence from Gbe and other languages as well. Indeed, before the present writer (although he did not know it until he presented the first version of this paper), J. Le Saoũt [1973] pointed out that many West African languages are characterized by the absence of phonemic nasal consonants and the presence of both phonemic oral and nasalized vowels. Thus Universals I and X quoted in our introduction may be considered as invalidated and have no force

as an argument in the analysis of new languages.

A third conclusion which derives from the treatment of /b d-r y l γ and w/ in Gbe as belonging to one class is that the set features may not be phonetically based, since methodologically they are arrived at when the phonological study of the language is almost completed, i.e. they are language-specific.

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PARATAXIS IN LANGO*

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Lango regularly employs a syntactic construction involving the juxtaposition of two clauses within the same sentence without any marker of subordination or coordination specifying the relation between them. This construction is referred to as the (asyndetic) paratactic construction. In this paper, we examine both the syntactic properties of this construction and its semantic properties, showing how the two interrelate. In the final section we discuss the synchronic and diachronic relation between parataxis and serialization.

1. Introduction

Lango, a Western Nilotic language, regularly employs a syntactic construction which involves the juxtaposition of two clauses within the same sentence without any marker of subordination or coordination specifying the relation between the two clauses. We will refer to this construction as the *paratactic construction* (technically, *asyndetic parataxis*). Paratactic constructions seem to occur in all languages, but what is unusual in the case of Lango is the frequency of parataxis, its special features (versus other sorts of juxtaposition), and the manner in which the paratactic construction is integrated into the system of syntactic oppositions.

Below are some examples of parataxis (NB: the tonal and segmental forms given throughout represent careful pronunciation; predictable phonetic features are not in general specified in our notation):

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complementation

- (1) *dákó òdìò ìcò òpyètò kál*
 woman 3s-pressed man 3s-winnowed millet
 the woman pressed the man, he winnowed millet
 'the woman forced the man to winnow millet'
- (2) *àtín ònèná àjéḡḡé ì kór òt*
 child 3s-saw-ls ls-lean-reflex ì on side house
 the child saw me, I leaned against the house
 'the child saw me lean against the house'
- (3) *lócà òpòyò òcègò dógólá*
 man 3s-remembered 3s-closed door
 the man remembered it, he closed the door
 'the man remembered to close the door'
- (4) *nákó òcàkò òdèpò lèmón*
 girls 3s-began 3s-gathered orange
 the girl began it, she gathered oranges
 'the girl began to gather oranges'

directional

- (5) *lócà òyitò gòt òlòbò dákó*
 man 3s-climbed mountain 3s-followed woman
 the man climbed the mountain, he followed the woman
 'the man climbed the mountain toward the woman'

causative

- (6) *àték àcámó ríḡò*
 ls-strong ls-eat meat
 I am strong, I eat meat
 'I'm strong because I eat meat'

consequential

- (7) *àtíyó tìc àtíé ì cènnè*
 ls-work work ls-be+present at money
 I work, I have money
 'I work so I have money'
- (8) *tìccì tèk ólḡ*
 work-this hard 3s-tire-ls
 this work is hard, it tires me
 'this hard work tires me'

circumstantial

- (9) áðòk cên ànwóné pácò
 1s-go+back back 1s-found-3s home
 I went back, I found him home
 'when I went back, I found him home'

simultaneous events

- (10) dákkò ònwòṅò myéíó wéró myéíó wéró
 woman 3s-found 3s-dances 3s-sings 3s-dances 3s-sings
 the woman danced, she sang, she danced, she sang
 'the woman danced and sang'

evaluative

- (11) én òm'á dèk òrémá
 she 3s-gave-1s stew 3s-be+insufficient-1s
 she gave me stew, it is insufficient for me
 'she didn't give me enough stew'

In this paper, we will discuss the morphological, syntactic, and semantic characteristics of parataxis in Lango. We will try to relate the distribution of paratactic constructions to the general meaning of parataxis in Lango.¹ In the last section we will briefly compare parataxis and verb serialization.²

¹We are assuming that syntactic constructions, like the words that constitute them, can be assigned meaning in the sense that they make a regular contribution to the meaning of the sentences which contain them.

²In addition to those listed above, there is another important occurrence of parataxis in Lango, namely the "consecutive events" construction with *té* :
consecutive events

- (a) án àcámò dèk àté màttò tábà
 I 1s-ate stew 1s-and+then drink-infin tobacco
 I ate stew, and then I smoked
 'I ate stew and then I smoked'
- (b) téd r'ṅò àté càmmò
 cook-imper meat 1s-and+then eat-infin
 cook the meat, and then I'll eat it
 'cook the meat and then I'll eat it'

2. General Characteristics of Paratactic Construction

In this section, we will discuss some general characteristics of paratactic constructions. In particular, we will show that paratactic constructions are single sentences consisting of two (or more) syntactically independent though parallel clauses forming a single phonological unit. The second clause cannot have an overt nominal subject and no marker of subordination or coordination links the two clauses.

The phonological status of paratactic constructions as single sentences is shown first of all by the fact that paratactic constructions form intonational units like simple sentences and not like compound sentences. In the case of true conjoined sentences, e.g. those conjoined with *éńtú* 'but, as for', there is a pause before the conjunction and each conjunct exhibits a left-to-right falling intonation contour. Paratactic constructions, like simple sentences, exhibit a single left-to-right falling intonation contour with no characteristic pause at the clause boundary. In this way, paratactic constructions differ from other sorts of juxtaposed clauses in Lango and other languages, where the intonation pattern reveals a division into two clauses. The English juxtaposed construction

(12) it's not cheap, it's expensive

exhibits this pattern, while

(13) go tell your brother to come in

is the English counterpart of the Lango paratactic construction. Downdrift as well as downstep phenomena in Lango operate in the normal way across clause boundaries in paratactic constructions. For example, the word *dákó* 'woman' conditions downstep on any high tone following it, as in:

(14) *dákó* ¹*kédó* *àkèddí* 'the woman braids grass'
 woman 3s-braid grass

dákó also conditions downstep across clause boundaries in parataxis:

This construction has a number of peculiarities, mostly centering around the defective verb *té* 'and then', so that some of the generalizations about parataxis in Lango presented below will not apply straightforwardly to this construction. The verb *té* is discussed more thoroughly in Noonan [1980].

- (15) àtín ònwòṅò díó dáko 'tédde dèk
 child 3s-found 3s-press woman 3s-cook+for-3s stew
 the child used to press the woman, she used to cook stew for him
 'the child used to force the woman to cook stew for him'

Similarly, other rules of external sandhi such as those converting /k/ to [x] and /t/ to [ɕ] (a voiceless tap) operate across clause boundaries in parataxis, so that the word final /k/ of gwók 'dog' in

- (16) àwíṅò gwók ògwèò
 1s-heard dog 3s-bark
 I heard the dog, it barked
 'I heard the dog bark'

is pronounced [x], whereas in sentence final position as in

- (16') àwíṅò gwók 'I heard the dog'

it is pronounced as a velar stop.

Each clause in the paratactic construction contains a fully inflected verb so that each clause could stand by itself as an independent sentence, as indicated by the glosses provided for (1) through (11) above. The verbs need not agree in aspect.³ Each clause may be independently negative.⁴ On-

³For example in

- (a) àwíṅò dáko àjwàttò lóca
 1s-hear-perf woman 1s-hit-prog man
 I heard the woman, she was hitting the man
 'I heard the woman hitting the man'

the first verb àwíṅò 'I heard' is perfective, while àjwàttò 'I was hitting' is in the progressive aspect. The Lango verb codes three aspectual categories: progressive, habitual, and perfective. Tense distinctions are not made directly in the verb, but can be indicated (optionally) by various auxiliary verbs. These auxiliaries may occur in either clause. ònwòṅò 'he/she found it, it is found' indicates secondary past with perfective aspect, past tense with habitual and progressive:

- (b) àmáko ìcò ònwòṅò àkwàllò gwèò
 1s-caught-perf man aux 3s-steal-prog chicken
 I caught the man, he was stealing the chicken
 'I caught the man when he was stealing the chicken'

⁴For example, the second clause below may occur with or without negation:

ly the first verb in the series can have an overt nominal subject; any verbs following the first are inflected for subject agreement but have as their subject some referent that is either subject or object of the first clause in the series.⁵ In the case of sentences like

- (17) *lócà òdìò àtín òkwànò búk*
 man 3s-pressed child 3s-read book
 the man pressed the child, he read the book
 'the man forced the child to read the book'

the noun *àtín* 'child' is notionally the direct object of the first verb *òdìò* 'pressed' and the subject of the second verb *òkwànò* 'read', but syntactically, it functions only as the object of *òdìò*. There is one simple demonstration of the syntactic status of *àtín* in (17). When *àtín* is pronominalized, the verb *òdìò* is inflected for third person singular object, as in

- (18) *lócà òdìé òkwànò búk*
 man 3s-pressed-3s 3s-read book
 the man pressed him he read the book
 'the man forced him to read the book'

-
- (a) *jò òbínó òrém*
 people 3p-came 3p-be+insufficient
 people came, they are insufficient
 'not enough people came'
- (b) *jò òbínó pé òrém*
 people 3p-came neg 3p-be+insufficient
 people came, they are not insufficient
 'enough people came'

Negation of the first clause does not negate the entire construction:

- (c) *pé àték àmátó kòṅò*
 neg 1s-strong 1s-drink beer
 I'm not strong, I drink beer
 'Because I drink beer, I'm not strong'

Negation will be discussed further below.

⁵The "consecutive events" construction with *té* is exceptional in that it can have a subject for the second clause that is not identical to an argument in the first, but this subject can only have pronominal reference in the second clause, i.e. it cannot be expressed as an overt noun unless it appears also in the first clause.

Pronominalized direct objects in Lango appear as object affixes as in (18), but pronominalized subjects can either be non-overt, appearing only as inflections on the verb, or can appear as a subject pronoun accompanied by the subject agreement inflection. If àtín in (17) is pronominalized by either of the techniques available for subjects, the result is ungrammatical:

(19) *lócà òdìò òkwànò búk 'the man forced him to read the book'⁶

(20) *lócà òdìò én òkwànò búk 'the man forced him to read the book'

It might be maintained, however, that (18) is simply some sort of phonological reduction of (20). There are good semantic reasons why this could not be the case given the respective functions of én and the paratactic construction, as will become evident in what follows, but an additional problem with this analysis involves the tone on the second verb. When a third person singular verb in Lango has an overt pronominal subject, as in

(21) én òkwànò búk 'he read the book'
he 3s-read book

the verb in the perfective assumes the relative clause tonal pattern of low-high-low, the same as we find in the relative construction in

(22) lócà òkwànò búk 'the man who read the book'
man 3s-read book

When the verb has no overt subject or when the subject is a noun, the tonal pattern in the perfective is low-low-low, as in

(23) òkwànò búk 'he read the book'

(24) lócà òkwànò búk 'the man read the book'⁷

⁶Sentence (19) is grammatical with the reading 'the man forced it to read the book'.

⁷The construction utilizing the subject pronoun én most likely arose via a cleft construction. This would accord with its use in modern Lango since, like clefted constituents, én is typically only used when the argument it represents is focused or in contrast.

This tone alternation is a grammatically conditioned feature and is not a matter of tone sandhi. If (18) did in fact arise through phonological reduction of some construction like (20), where *én* was the subject of *òkwàndò*, then we would expect the second verb in (18) to have the relative tone. This relative tone can occur in subordinate clauses when the pronoun *én* is subject, as in

- (25) *àtámò ní 'én òmátò kòṅṅò*
 1s-though comp he 3s-drank beer
 'I thought that he drank beer'

We do not find relative tone on *òkwàndò* in (18), even as an option.

Another indication of the syntactic status of paratactic constructions comes from a comparison of paratactic complements with hypotactic complements. A hypotactic complement is a subordinate clause, whereas a paratactic complement is not. With hypotactic complements, both indicative and subjunctive, a verb inflected for third person must have a prefix indicating whether the subject of the subordinate clause is the same or different from the subject of the main clause. In the third person singular perfective, the prefix indicating same subject (non-switch reference) is *è-*, and the prefix indicating different subject (switch reference) is *ò-*:

- (26) *rwót òpòyò ní ècégò dógólá* (non-switch reference)
 king 3s-remembered comp 3s-closed door
 'the king₁ remembered that he₁ closed the door'

- (27) *rwót òpòyò ní òcégò dógólá* (switch reference)
 'the king remembered that he/she closed the door'

In (26), the subject of *ècégò* must be interpreted as *rwót* 'king', while in (27) the subject of *òcégò* must be interpreted as being someone other than the king. This opposition is available only in subordinate clauses. Since the switch reference prefix *ò-* is phonologically identical to the ordinary main clause third person singular perfective prefix *ò-*, (28) is a possible sentence,

- (28) *òcégò dógólá* 'he/she closed the door'

whereas (29) is not.

(29) *ècégò dógólá

The non-switch reference è- is possible only in subordinate clauses and is not available in adjacent sentences in discourse or in paratactic constructions. So, the paratactic construction

(30) rwót òpòyò òcègò dógólá
king 3s-remembered 3s-closed door
the king remembered it, he closed the door
'the king remembered to close the door'

does not have a counterpart in

(31) *rwót òpòyò ècégò dógólá

even though the subjects of both verbs in (30) are taken to be coreferential, which in the case of a true subordinate clause would require the non-switch reference prefix è- , as in (26).

We can sum up the characteristic features of paratactic constructions so far as follows:

1. The two clauses form a phonological unit like simple sentences and unlike conjoined clauses.
2. Each clause contains a fully inflected verb.
3. The verbs need not agree in aspect (there is no tense marking on the verbs per se; auxiliaries may occur on either clause).
4. Each verb may be independently negated.
5. Only the first verb in the series has an overt subject NP.
6. Hypotactic switch reference morphology is not available to the second clause.
7. No overt marker of coordination or subordination links the clauses.

3. Semantics of Parataxis

Having considered some aspects of the syntax of parataxis, it remains now to consider its semantic aspects and to try to relate the syntax to the semantics.

Sentences (1) through (11) are a representative sample of the sort of semantic relations that can be coded with the paratactic construction in Lango. It might seem on first inspection, given the diversity of the sample, that any sort of relation between two propositions can be coded paratactically.

This is, in fact, not the case. The relationships that can be expressed by means of parataxis include only those that are compatible with a separate assertion of each of the juxtaposed clauses, where, moreover, both clauses must be taken as true, a situation which resembles that of ordinary conjunction with 'and'. The exact nature of the relationship between the two clauses is inferred from the set of relationships compatible with the meaning of the construction on the basis of real world knowledge. In this way, more than one interpretation of a paratactic construction is often possible. For instance,

- (32) àryék pé àmátó kòhò I'm wise, I don't drink beer
 ls-wise neg ls-drink beer

can be interpreted as either

- (33) 'I'm wise because I don't drink beer'

or

- (34) 'I'm wise therefore I don't drink beer'

In cases of real ambiguity, a more exact meaning can be specified by resorting to a non-paratactic construction, so that the meaning of (33) can be rendered by

- (35) àryék pì éh pé àmátó kòhò
 ls-wise because+of it neg ls-drink beer
 'I'm wise because I don't drink beer'

The characterization of the semantics of parataxis given above makes certain predictions about non-occurring interpretations of paratactic constructions. A few of these will be mentioned here:

(i) Because each of the clauses is asserted to be true, paratactic constructions cannot receive a conditional interpretation. Therefore the sentence

- (36) òhèné òmìé búk he saw him, he gave him the book
 3s-saw-3s 3s-gave-3s book

can be interpreted as

- (37) 'he saw him give him the book'

or

(38) 'when he saw him, he gave him the book'

but not as

(39) *'if he saw him, he gave him the book'

The reason, of course, is that in the conditional interpretation neither clause is asserted to be true.

(ii) Similarly, paratactic constructions cannot be interpreted disjunctively, because this interpretation would require that one of the clauses be interpreted as not true. For instance, the paratactic construction

(40) dákó òtèdò rìṅó òmyènò kwàn
 woman 3s-cooked meat 3s-stirred millet-meal
 the woman cooked meat, she stirred millet-meal

can only mean

(41) 'the woman cooked meat and millet-meal'

and cannot be interpreted disjunctively as

(42) *'the woman cooked meat or millet-meal'

(iii) A paratactic construction consists of a pair of assertions united within a single sentence and in this way resembles clauses conjoined by 'and' in English. Such clauses are normally arranged in a linear order that accords with their order in real time, so that

(43) Zeke got sick and he died

is acceptable, but

(44) *Zeke died and he got sick

is not. Conjoined clauses may also describe simultaneous actions as in

(45) He ate, and he drank

A similar situation holds in parataxis. Where the two clauses represent events, their order will correspond to real time order or be interpreted as being roughly simultaneous. In this way,

- (46) áń àdók pàcò pé ànwónò ginnóró
 I ls-go+back home neg ls-found anything
 I went back home, I didn't find anything
 'after I went back home, I didn't find anything'

can't be interpreted as 'when I didn't find anything, I went back home' since that would require that the event coded by the second clause be interpreted as occurring before that of the first clause.

(iv) As complements, the second, complement-like clause of a paratactic construction is a member of a system of oppositions that includes a hypotactic indicative, a subjunctive, and an infinitive (in Noonan and Bavin [ms] we have a more detailed discussion of this). The indicative is used with complements with independent time reference, the subjunctive and infinitive with clauses with determined time reference, the infinitive being further specified for equi-subject conditions; it is not marked for subject agreement. The paratactic complement only occurs in semantic environments where both the clause containing the complement taking predicate and the complement clause itself can be interpreted as separate assertions. This contrasts with the situation in hypotaxis, which affects all the other complement-types in Lango, where there is a single assertion involving both the complement taking predicate and the complement, allowing the complement taking predicate to act as a sort of semantic filter qualifying the interpretation of the complement.

The system of oppositions in complementation involving the paratactic construction will be illustrated briefly. First, the paratactic complement and the hypotactic indicative complement:

paratactic complement

- (47) àtín ònènò lóca ònàpò pàlà
 child 3s-saw man 3s-blunted knife
 the child saw the man, he blunted the knife
 'the child saw the man blunt the knife'
- (48) nákó òpòyò òdìnò kál
 girl 3s-remembered 3s-threshed millet
 the girl remembered it, she threshed millet
 'the girl remembered to thresh millet'

hypotactic indicative complement

- (49) àtín ònènò ní lóca òràrò pàlà
 child 3s-remembered comp man 3s-blunted knife
 'the child remembered that the man blunted the knife'
- (50) pákó òpòyò ní èdínò kál
 girl 3s-remembered comp 3s-threshed millet
 'the girl remembered that she threshed millet'
- (51) rwót bfnó tàmmò ní lóca òdòk
 king 3s-fut think comp man 3s-went+back
 'the king will think that the man went back'
- (52) àpé àyé ní òkéìò òcàmò réc
 ls-neg ls-believe comp Okello 3s-ate fish
 'I don't believe that Okello ate the fish'

The paratactic and hypotactic indicative complements share indicative verb morphology, differentiating both from subjunctive and infinitive complements. As mentioned above, (hypotactic) indicative complements are used where the complement has independent time reference vis-à-vis the matrix clause and where the entire sentence constitutes a single assertion. Example (51) provides an illustration of a case where the time reference of the complement taking predicate and the complement differ. Examples (49-52) also constitute single assertions: the interpretation of the complement predication as true or false follows from the meaning of the complement taking predicate, so that the complements in (49-50) are interpreted as true, while those in (51-52) are interpreted as false. That is, the logical status of the complement is provided by the matrix predicate. In parataxis, there are limitations in time reference possibilities (cf. (iii) above), and both clauses must constitute assertions regardless of the meaning of the first predicate. The logical status of the second clause is not in any way qualified by the first. If *poy-* 'remember' is negated in (48), the meaning is not the negation of the English gloss, 'the girl didn't remember to thresh millet', since the only interpretation possible with this gloss is that the girl didn't thresh the millet. In parataxis each clause is a separate assertion, so negating the first clause cannot affect the truth value of the second. In fact, the nega-

tion of the first clause in (48)

- (48') *nákó pé òpòyò òdìnò kál
 girl neg 3s-remembered 3s-threshed millet
 the girl didn't remember it, she threshed millet

results in a semantically anomalous sentence because it makes no sense to assert that the girl didn't remember something but did it anyway. Notice that the negation of (50)

- (50') nákó pé òpòyò ní èdínò kál 'the girl didn't remember that she
 threshed millet'

is not semantically anomalous.

Both subjunctive and infinitive complements have determined time reference, which is to say that the time reference of such complements follows from the meaning of the matrix predicate. For example, in

- (53) ámìttò lókkò tìc 'I want to change jobs'
 1s-want change-infin work
 (54) ámìttò ní 'lók tìc 'I want him to change jobs'
 1s-want comp 3s-change-subj work

both in the infinitive complement in (53) and the subjunctive in (54), the time reference of the complement must be future relative to the matrix. The infinitive only occurs where its implied subject is the same as the matrix subject. Neither subjunctive nor infinitive is marked morphologically for tense or aspect.

The subjunctive contrasts with the paratactic complement with a few predicates. For example, with *dì-* 'press',

- (55) rwót òdìá ní àkón bùr
 king 3s-pressed-1s comp 1s-dig-subj hole
 'the king pressed me to dig a hole'
 (56) rwót òdìá àkónò bùr
 king 3s-pressed-1s 1s-dug hole
 the king pressed me, I dug a hole
 'the king forced me to dig a hole'

the subjunctive (55) receives a "non-realized" interpretation, hence the gloss

with 'press', while the paratactic complement (56) has a "realized" interpretation, so 'force' is used in the gloss. The realized interpretation in (56) results, of course, from the fact that the second clause is separately asserted.

In sum, the difference between hypotaxis and parataxis can be diagrammed as in (57):

- (57)
- | |
|--|
| <i>hypotaxis</i> |
| $\underbrace{\text{complement taking predicate [complement]}}_{\text{assertion}}$ |
| <i>parataxis</i> |
| $\underbrace{\text{complement taking predicate}}_{\text{assertion}} \quad \underbrace{\text{[complement]}}_{\text{assertion}}$ |

Those complement structures whose interpretation is not compatible with an assertion of both clauses do not occur with paratactic complements. For example, complements to desiderative predicates like *mìttò* 'want' are not coded paratactically since the second clause cannot be taken to be a realized event. The same situation holds for predicates of fearing. Utterance predicates like *kòbbò* 'say' also do not take paratactic complements since the use of these predicates does not imply an assertion of the complement, as in

- (58) Roscoe said that the Earth is flat

Such complements, except when the matrix verb is present and the subject of the matrix is first person singular, are reports of assertions, not assertions themselves. Complements to commentative predicates (factives) are similarly not assertions, though they are taken to be true. Their status as discourse backgrounded material is incompatible with the function of the paratactic construction to display two connected assertions. Further, modal predicates like *twèèrò* 'be able' and *myèèrò* 'be necessary' cannot occur as complement taking predicates with paratactic complements because, like desideratives, their complements do not represent realized events and cannot in themselves constitute assertions.

Paratactic complements do occur in the following environments, all of which are compatible with an interpretation of each clause as an assertion:

(a) Complements to immediate perception predicates:

In the sentence

- (59) ànéno lóca òmàkò gwèno
 ls-saw man 3s-caught chicken
 I saw the man, he caught the chicken
 'I saw the man catch the chicken'

both the first and second clauses ((60a) and (60b) respectively)

- (60) a. ànéno lóca 'I saw the man'
 (60) b. òmàkò gwèno 'he caught the chicken'

can be uttered as separate assertions without damage to the immediate perception sense of the whole since both the act of perception and the thing perceived must be real events in order for the sentence as a whole to be true.

(b) Complements to positive propositional attitude predicates when used assertively:

Positive propositional attitude predicates, especially with a first person singular subject and the verb in the habitual aspect, can be used both to make an assertion about the speaker's belief and to make an assertion about the content of the complement clause. In Lango, this difference is made manifest in the use of the hypotactic indicative complement when making an assertion about speaker belief and the paratactic complement when asserting the content of the complement proposition. So the sentence

- (61) àtámó ní 'rwótwa ràc 'I believe that our king is bad'
 ls-believe comp king-our bad

using the hypotactic indicative with its complementizer ní, involves making an assertion about belief. The corresponding paratactic construction, however, asserts that I believe something, but at the same time it asserts the content of the complement proposition.

- (62) àtámó rwótwa ràc I think of our king, he is bad
 ls-think king-our bad 'I believe our king is bad'

The difference between the two constructions is brought to sharp relief when they are negated. The hypotactic construction (61) can be negated with no contradiction as (63)

- (63) pé àtámó ní 'rwótwá ràc
 neg 1s-believe comp king-our bad
 'I don't believe that our king is bad'

since it is belief that is being asserted. In the case of the paratactic construction, where both belief and the badness of the king are being asserted, its negation

- (64) *pé àtámó rwótwá ràc

produces an unacceptable sentence since it is semantically anomalous to assert that you have no thoughts about the king and then assert that the king is bad. Sentences with propositional attitude predicates containing paratactic complements have a great deal in common with sentences in other languages containing parenthetical uses of these predicates [Noonan 1981].

(c) Complements to positive achievement predicates (implicatives):

Achievement predicates like pòyò 'remember' also take paratactic complements as in

- (65) lóca òpòyò òlwèrò módó
 man 3s-remembered 3s-cleared compound
 the man remembered it, he cleared the compound
 'the man remembered to clear the compound'

since an interpretation of the whole is compatible with the assertion of the two component clauses. Here again, negation of the first clause produces an anomalous sentence

- (66) *pé lóca òpòyò òlwèrò módó
 neg man 3s-remembered 3s-cleared compound

since it makes no sense to assert that the man forgot something and then to assert that he did it.

(d) Complements to causative predicates:

When paratactic constructions occur as complements to causative predicates, the complements are always implied to be realized events, as in

- (67) dáko òdìò àtín òjòbò kál
 woman 3s-pressed child 3s-scooped+up millet

the woman pressed the child, she scooped up millet
'the woman forced the child to scoop up millet'

since both clauses are individually asserted. When the complement is not taken to be a realized event, another complement-type, the subjunctive, must be used:

(68) dákó òdìò àtín ní 'jób kál
woman 3s-pressed child comp 3s-scoop+up-subj millet
'the woman pressed the child to scoop up millet'

(e) Complements to phasal predicates:

Phasal predicates like càkkò 'begin' take paratactic complements because they too are compatible with an interpretation where each clause is an assertion:

(69) nákó òcàkò òtèdò dèk
girl 3s-began 3s-cooked stew
the girl began it, she cooked the stew
'the girl began to cook the stew'

In the course of this section, we have referred on a couple of occasions to the similarity of the paratactic construction to clauses conjoined with 'and' in English. We mentioned, for example, that in both constructions certain temporal relations between the clauses are normally observed. A further similarity lies in the sort of logical relations that may be inferred to hold between the clauses. For example, the relation of cause and consequence can be found in parataxis, e.g. (6-8), and in clauses conjoined with 'and', as in (70) she took arsenic and (in consequence) fell ill⁸

As Dik [1968:266] points out, the semantic value of 'and' as a conjoiner of clauses is only that the clauses "should be taken as combined in some way". The exact nature of the relation between the clauses is left to inference, which, as we have indicated above, is the same for clauses in parataxis.

Lango has no word that functions like English 'and'.⁹ In fact, conjunc-

⁸See Dik [1968:265-267] for a detailed discussion of the semantics of this and similar sentences.

⁹Driberg [1923] gives ka as the Lango translation of 'and', but in our

tions per se are notably rare in the language. 'And then' is translated by the *té* construction (fn. 2): *té* is a verb, and its clause is linked paratactically with the preceding clause. 'Or' is translated by *òpò*, which is the third singular perfective of *po-* 'be possible'. 'But' is translated by *éntó*, which consists of *én*, the third singular pronoun, and *tó*, which appears to be related to *té* [Noonan 1980]. Only *ká* 'if' seems to be an unambiguous conjunction.

The 'and' relation in Lango is served by parataxis, which like 'and' in English, functions only to indicate that clauses are to be taken as combined, without indicating anything further about their semantic relationship. Note, however, that not all clauses conjoinable with 'and' in English may be linked paratactically in Lango. For example, in parataxis the subject of the second clause must be an argument of the first. This constraint, which amounts to a "topic-link" requirement, greatly limits the range of parataxis vis-à-vis 'and'. The indication of cohesion between sentences not topic-linked in this way is handled by a set of particles, e.g. *dòŋ*, whose significance is not yet fully understood.

In sum, the semantic force of parataxis in Lango is the asyndetic conjunction of two topic-linked assertions. The semantic relation between the clauses is inferred from real world knowledge, allowing for a variety of interpretations all of which must be consistent with the two assertion aspect of the construction.

4. Parataxis and Verb Serialization

In this paper we have discussed syntactic and semantic aspects of parataxis in Lango and have tried to show ways in which the uses of the construction are predictable from its meaning. One issue remains to be discussed, namely the relation of parataxis to the related construction known as verb serializa-

data (as well as Driberg's own texts) the form only occurs with the third singular pronoun *én* as *ékká* 'then'. This form never occurs alone as a conjunction, but instead optionally accompanies the *té* construction (see fn. 2). There is no coordinate conjunction for nouns, which are linked instead with *ì* 'with'.

though only the first may be an overt NP. With serials, there is only one grammatical subject, whatever the semantic subject of the following verbs may be, as in the following Akan example [Schachter 1974:258]:

- (74) mede aburow migu msum
 ls-take corn ls-flow water-in
 'I pour corn into the water'

Clearly *aburow* 'corn' is the semantic subject of 'flow', yet the verb takes first person concord. Obligatory subject agreement does not occur in paratactic constructions (cf. (2), (56)).

The syntactic differences noted above correlate with a crucial semantic difference, namely that paratactic constructions contain two assertions while serial constructions contain just one. Independent aspect marking and negation would seem a necessary consequence of a clause that constitutes a separate assertion, as would a lack of obligatory subject agreement. Note also that the "one assertion" aspect of serialization leads to the possibility of verb compounding [Lord 1975, 1977] where two verbs in a serial construction constitute a lexical unit. The two assertion aspect of parataxis would preclude such a possibility.

It should be noted that Lango does have serial constructions as defined above. Serial constructions are used, for example, to express comparative and ingressive senses:

Comparative

- (75) àcwé àlís rwót 'I'm fatter than the king'
 ls-fat ls-exceed king
 (76) dákó 'dwón lís ìcò 'the woman is bigger than the man'
 woman 3s-big 3s-exceed man

Ingressive

- (77) òwót òyép cém 'let's go and look for food'
 lp-go-subj lp-look+for-subj food
 (78) án àwótò àlóbò dákó 'I followed the woman'
 I ls-went ls-followed woman

In the comparative and ingressive, there is obligatory subject agreement, obligatory aspect agreement, and only one negative possible whose scope is

the entire sentence. If (75) is negated,

(79) pé àcwé àlís rwót 'I'm not fatter than the king'
neg ls-fat ls-exceed king

we cannot infer that 'I'm not fat' or that 'I exceed the king' in anything, inferences that would be possible with a two assertion paratactic construction. The negative in (79) has the entire sentence, not just the first clause, within its scope.

Having now examined the differences between parataxis and serialization in Lango, and presumably elsewhere, we can now speculate on a possible diachronic relation between the two. We would like to suggest parataxis as a possible source for serialization.¹³ Serial constructions could develop by reanalysis of paratactic constructions, especially where the *syntactic* constraints on serialization match, or nearly match, the *pragmatic* requirements of certain constructions.

In the case of the comparative and ingressive, we find a match of this sort. In these constructions, the subject of both clauses will necessarily be the same, as will the aspect marking on both predicates. Independent negation, hardly possible given the sense of the ingressive, is not likely with the comparative. And the semantic effect of one versus two assertions is minimal in these cases. Reanalysis as serial would just syntacticize the pragmatic status quo. The only obvious syntactic consequence would be the placement of the negative -- from

(80) àcwé pé àlís rwót

when the construction is paratactic, to

(81) pé àcwé àlís rwót

following reanalysis.

In other cases, the syntactic requirements of serialization will be met,

¹³Serial constructions could also develop from "consecutive" constructions as suggested by Hyman [1971]. Paratactic and consecutive constructions have a number of similarities (see Noonan [forthcoming]). The Lango translations of Hyman's consecutive are the paratactic and *té* constructions.

if not as consistently, at least regularly. For instance, the causative paratactic construction¹⁴

- (82) màc òmìò òbòkè òtwò
 fire 3s-gave leaf 3s-dried
 the fire gave it to the leaf (= did something to the leaf), it dried
 'the fire dried the leaf'

meets the syntactic specifications for a serial as would quite likely the majority of instances of causative parataxis. Reanalysis would leave the overall semantic complexity of these sentences virtually unchanged, so that (82) as a serial could carry basically the same information as before. Such constructions are potential candidates for reanalysis.

Reanalysis from paratactic to serial will most likely occur where one of the verbs assumes a regular role in a construction so that it can be given a sentence functional interpretation. By this, we mean direct object marker, indirect object marker, marker of comparative, marker of aspect, etc. In Lango, ɪɔ- 'exceed' (and its synonym kat-) have assumed the role of marker of comparative, and wot- 'go', when followed by another finite verb, serves to reinforce perfective aspect, though it retains a motional sense as well. Its omission, however, in the ingressive construction would not significantly affect the meaning of the sentence. Lango lacks the 'take' construction, found frequently in West African serializing languages and used there to mark direct objects and instruments, as a causative marker, among other functions. Because of its widespread use and its ability to take on sentence functional

¹⁴Causative constructions like (82) can be shown to be paratactic in the following way. First, the second clause may be independently negated,

- (a) màc òmìò òbòkè pé òtwò
 fire 3s-gave leaf neg 3s-dried
 the fire did something to the leaf, it didn't dry
 'the fire didn't dry the leaf'

and it may have a different subject than the first:

- (b) lóca òmíá àwótò
 man 3s-gave-ls ls-went
 the man did something to me, I went

interpretations, this verb is a fine candidate for reanalysis. Perhaps the frequent use of serialization in some West African languages has gone hand-in-hand with the frequent use of the 'take' construction. Lango lacks any verb in parataxis or serialization with the generality of the 'take' construction. The various words for 'take' in Lango play no special role in parataxis or serialization. 'Give', another frequent participant in serial constructions across languages, does have a regular role in a paratactic construction in Lango. But *mty-* 'give' does not mark indirect objects in Lango, unlike similar verbs in West African serializing languages, and it has a regular role only in the causative construction, which has not been reanalyzed as serial (see fn. 14). It may be that the lack of a 'take' construction or something similar is an important factor in the predominance of parataxis over serialization in Lango.

In this section, we have contrasted the syntactic and semantic aspects of parataxis and serialization. We have suggested that at least some instances of serialization could arise via reanalysis of a paratactic construction. We have also indicated that certain paratactic constructions are more likely to undergo such reanalysis.

Further, if the first clause in (82) is negated,

(c) *pé màc òmìò òbòkè òtwò*

the resulting sentence is somewhat anomalous since pragmatically it makes no sense to assert that the fire did nothing to the leaf, and it dried anyway. But the important point is that the scope of the negative in (c) does not extend to the second clause since that clause constitutes a separate assertion. This characteristic differentiates paratactic constructions from serials, as well as constructions involving hypotaxis like

(d) *lócà pé òdiá ní àwót*
 man neg 3s-pressed comp ls-go-subj

'the man didn't press/force me to go'

where the negative has the whole sentence within its scope.

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THE APPLIED SUFFIX IN SWAHILI*

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The applied suffix in Swahili poses an analytical problem because it expresses such a wide variety of semantic relationships. Most treatments provide either an extremely vague description of its meaning or else concentrate on a single use thus implicitly postulating many homonymous forms. We shall use distributional and semantic evidence to demonstrate that there is a single productive verb suffix which can be distinguished from frozen lexical stems that look the same or similar. We shall argue that all of the productive uses of |E can be accounted for with a single abstract meaning from which distinct messages are inferred in particular contexts. The semantic effect of the suffix is to "add a role to the lexical verb that is less active than the agent."

0. Introduction

The applied suffix on Swahili verbs has long posed an analytical problem. For example, in her classic grammar Ashton [1947] made no attempt to provide a unitary description. She called the form simply "prepositional" since it could mean to do an action *for* something, *with* something, *to* something, *about* something, etc. Polomé [1967] says that the basic meaning of this suffix has to do with "directing the action against something". Both authors, like other published descriptions [Sacleux 1909], fail to distinguish the truly productive patterns of distribution and meaning of the applied suffix from the many lexical relics that resemble the applied suffix but are related to it only historically.

The goal of this paper is to show that there is, in fact, a freely productive applied suffix which has a unitary meaning and that it may be distinguished from the many derivationally related homonyms both with respect to its distribution and meaning.

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1. Morphology

The base form of the applied suffix in modern Swahili is IE, where E represents the harmonizing vowel found also in several other Swahili suffixes.¹ As can be seen in the table below, the vowel is /i/ after stems whose final vowel is /i,a,u/ and /e/ after stems ending in the mid vowels /e/ or /o/. (All verbs end in a final /a/, an indicative marker). The consonant /l/ in the applied form only appears after vowel-final verb stems and is deleted after consonant-final stems.²

(1)	pig-a	'strike'	pig-i-a
	end-a	'go'	end-e-a
	omb-a	'pray'	omb-e-a
	chuku-a	'take'	chuku-li-a
	kat-a	'cut'	kat-i-a

2. The Beneficiary/Indirect Object Use

The structure of a simple Swahili sentence is illustrated below.

(2)	a-li-kat-a	nyama	'he cut meat'
	S(he)-Past-cut-Indic meat		

The subject prefix, marked S in the literal gloss, is a pronoun. Then comes the tense marker followed by the verb stem. Since all our verb examples end in the indicative morpheme -a, we shall no longer separate it with a dash. In sentence (3) an additional prefix is added:

(3)	a-li-i-kata	nyama	'he cut the meat'
	S(he)-Past-0(meat)-cut meat		

The object prefix -i-, which is also a pronoun agreeing here with the object meat, is inserted just before the verb stem. It is used only when the object

¹The suffix in question is represented throughout as IE for reasons of graphical distinctness even though a phonologist might prefer to write a vowel harmony rule based on underlying /li/.

²Stems that contain no vowel may add either i (as in fa - fia 'die') or e (as in nya - nyea 'rain'). There is also a large class of borrowed verbs, e.g. husu - husia 'relate to', that follow quite different rules. See Port and Shepardson [forthcoming] for a complete discussion of the variants of Swahili verb suffixes.

is definitely identified. Thus it appears for most animate objects and some inanimates.

The most common use of the applied suffix, and the one that has had the most complete description, is illustrated in (4).

- (4) a-li-ni-kat-ia nyama 'he cut meat for me'
 S(he)-Past-O(me)-cut-IE meat

The subject and object pronouns are 'he' and 'me' respectively, and the verb is suffixed with IE . Since the meaning of the sentence is 'he cut meat for me', apparently IE adds the role of a beneficiary or indirect object which, in this case, is played by the first person singular pronoun in the object prefix. Notice in example (5) that the beneficiary participant can be shifted to the subject position by use of the passive suffix w .

- (5) ni-li-kat-i-wa nyama (na-ye) 'I had meat cut for me (by him)'
 S(I)-Past-cut-IE-Pass meat (by-him)

In this case the agent noun or pronoun can either be left out entirely or added after the marker na , equivalent here to English *by*. Thus (5) is something like 'I was cut-for meat'.

Sentences (4) and (5) represent the most basic use of the applied form when it occurs in a main verb: the indirect object added by the IE suffix is animate and represented as a pronoun in the object prefix; alternatively it appears in the subject prefix with a passive marker.

Thus far, the applied form does not pose a serious analytical problem. Semantically the suffix resembles the Latin dative in adding an indirect object to the event, but, unlike the dative, it does not indicate which noun plays the role—only that the role is played. Yet the applied form can be used for a wide variety of other messages as well: instrument, purpose, place-to-which, etc. This uncertainty about the meaning of IE has resulted in confusion about when the applied suffix is really present. That is, most analyses are unclear about when we are actually looking at an example of the applied form as part of the synchronic grammar and when we are looking at a frozen relic of a similar ancestral form that may have been productive in the proto-language.

2.1 Lexical relics. That such frozen relics exist is shown by examples like those in (6) where we see forms that look like an applied form and whose meaning seems generally coherent with the meanings characteristic of the applied but for which the necessary base forms without IE do not exist.

- (6) *ingā ingia 'enter'
 *kimba kimbia 'run'
 *poka pokea 'accept'
 *sika sikia 'hear'

Thus, for example, there is kimbia 'to run' or 'to run from' but no *kimba in the language. Further evidence that these words with apparent IE suffixes are simply lexical stems is found in (7) where we find that a regular applied suffix for the indirect object can also be added to these "pseudoapplied" stems when an indirect object is needed.

- (7) ni-ta-ku-poke-lea zawadi 'I will accept the gift for you'
 S(I)-Fut-O(you)-accept-IE gift

This is what we would expect if they are independent lexical stems.

Many descriptions of the applied form in Swahili discuss cases of apparent reduplication of the suffix, as in the examples in (8), with the suggestion that they are somehow emphatic versions of the simple suffix [Polomé 1967:85].

- (8) shinda 'surpass' shindilia 'pack down'
 enda 'go' endelea 'progress'
 penda 'like' pendelea 'favor'
 oga 'bathe' ogelea 'swim'

I propose that they actually represent a frozen lexical suffix. There may be some vague common meaning to examples of the double-IE or double-applied, and there is undoubtedly a historical connection between these examples and the IE under discussion. But it should be noted first that these examples cannot be interpreted as having an indirect object and second that this double suffix is not generally productive and has only a handful of examples—maybe only 10 or 15. Thirdly, these verbs, too, can add still another IE that acts like the normally productive one, as shown in (9).

- (9) ni-li-m-shindili-lia majani 'I packed down the leaves for him'
 S(I)-past-O(him)-pack-IE leaves

Here *shindilia* 'to press down' (historically related to *shinda*) appears in its own applied form *shindili-lia*, 'to press down for someone'. This is evidence that *shindili-* is a lexical stem. If it contained a productive IE then we could not add another (see (24) below).

There is a third kind of lexical relic of the IE suffix illustrated in (10):

- | | | | |
|-----------|-------------|---------|--------------|
| (10) nuka | 'smell bad' | nukia | 'smell good' |
| hama | 'move from' | hamia | 'move to' |
| angaa | 'be bright' | angalia | 'look at' |

There seem to be a few such lexical pairs that may appear to be differentiated by presence of the applied suffix, but which cannot plausibly be so analyzed. These very few exceptional examples, however, throw sand in the eyes of the investigator. Thus, for example, the relation between *nuka* 'smell bad' and *nukia* 'smell good' is a completely idiosyncratic semantic contrast not duplicated anywhere else in the language.

The existence of a number of words in the language that look like they contain an applied suffix but do not has made it more difficult to identify just the productive patterns. In fact the beneficiary or indirect object use that we presented earlier is not the only productive use of this suffix.

2.2. Instrument. The second important use is to add the role of an *instrument*. But the instrument use raises a special problem. Although beneficiary and instruments are both roles added by the applied suffix, they do not behave the same syntactically and further, informants disagree with each other on what is acceptable. In particular, it is very difficult to make the object prefix agree with the instrument noun, whereas the indirect object, as we saw in example (4) normally occurs there (cf. similar effects in closely related Chi-Mwini discussed in Kisseberth and Abasheikh [1975]).

For example the simplest way to add an instrument (shown in (11)) is simply to leave the verb unmodified and add a prepositional phrase with *kwa*.

- (11) a-li-kata nyama kwa kisu 'he cut meat with a knife'
 S(he)-Past-cut meat with knife

The problems begin in (12) where we also insert the applied suffix on the verb.

- (12) ?a-li-ka†-ia nyama (kwa) kisu 'he cut meat with a knife'
 S(he)-Past-cut-IE meat (with) knife

My informants agree that *ka†ia* rather than *kata* is all right here but differ as to whether the "redundant" preposition *kwa* should also be there. Some say the sentence is not very clear without *kwa*, while others dislike the redundancy of the preposition. (Incidentally, the order of nouns and prepositional phrases in this sentence, as elsewhere, has virtually no effect on acceptability.)

Similar vacillation and disagreements between informants was found for sentences like (13) where the instrument is put in the object prefix.

- (13) ?a-li-ki-ka†-ia kisu hiki nyama
 S(he)-Past-O(knife)-cut-IE knife this meat
 'he used this knife to cut meat'

This "ought" to be comparable to placing the indirect object in the object prefix. Some speakers say it sounds fine and quite appropriate while others report that it is impossible not to interpret (13) as somehow meaning 'he cut meat for the knife'. Furthermore, several other syntactic arrangements yield variable responses from native or highly experienced speakers of the language.³ One might be tempted to conclude from this that the applied suffix cannot have a productive instrumental meaning and that these examples are awkward for this reason. But the difficulties with examples (12) and (13) seem to be due primarily to using an instrumental message for IE in a main verb. For some reason, the instrumental use of IE occurs most frequently and most unambiguously in verbal infinitives used as relative clauses, such as those in (14).

³It is significant that speakers of northern (Kenyan) dialects of Swahili (Mombasa and Lamu) are much happier with sentences like (11) than are speakers from Tanzania and Zanzibar or speakers of the "Standard" dialect taught in schools. There is no reason for positing different analyses for the two dialects. They differ only in the extent to which they exploit the range of messages transmittable with this form.

- (14) a. kisu ch-a ku-kat-ia 'a knife for cutting with'
 knife of Inf-cut-IE
- b. kalamu y-a ku-andik-ia 'a pen for writing with'
 pen of Inf-write-IE
- c. kiko ch-a ku-vut-ia 'a pipe for smoking with'
 pipe of Inf-smoke-IE

Here we find 'a knife for cutting with' represented as *knife* plus the subordinating associative particle -a followed by the applied form of the verb infinitive. The other examples follow the same pattern. This very common construction shows that the instrumental message is not at all "forced" for the applied form.⁴ It is rather that, for reasons not yet understood, the instrumental use is not easily exploited in a main clause verb. It is my position, however, that this complexity does not stand in the way of an analysis of the semantic contribution of all the productive uses of the applied suffix. These syntactic asymmetries between beneficiaries and instruments should not obscure the unity of meaning of the applied form.

3. Analysis

It is my analysis that the function of the applied form of the verb in Swahili is to modify the lexical description of the occurrence by adding an additional role to those implied by the basic lexical verb. This role is always a weaker contributor to the lexically described activity than the agent role implied in the lexical meaning.⁵ There are basically four classes of messages that can be transmitted with this suffix. First, the additional role may provide a *motive* for the agent to perform the action, as in the case of an indirect object or beneficiary. Second, it may *assist* performance of the action by serving, for example, as an instrument. Third, the role may describe a participant who is involved as a *respondent* to the lexically described action. Lastly, the role added may not even involve activity of any sort in the

⁴The indirect object message can also be employed in such phrases but only for a noun other than the head. Thus, for example, pesa za ku-let-*ea* Hamisi, money of Inf-bring-IE Hamisi, 'money to take to Hamisi'.

⁵The meaning of IE, then, probably contrasts with the productive causative suffix IEsh which adds a role to the event that is a *stronger* contributor than the agent (see Port [1972]).

event, but simply be the *location* (in space or time) where the event occurs.

3.1. Motive. The contribution of the animate beneficiary as in sentence (4) as a *motivation* for the agent is fairly obvious. In sentence (15) we now have an inanimate book providing the motive for the agent: 'he comes-for book'.

(15) a-me-ki-j-ia kitabu hiki 'he has come for this book'
S(he)-Compl-0(book)-come-IE book this

In (16) the message of goal is quite clear.

(16) a-me-end-ea Nairobi 'he has gone to/toward Nairobi'
S(he)-Compl-go-IE Nairobi

The sentence strongly implies that he is still on the way and could not be used to mean, for example, 'he has moved to Nairobi'. That is, Nairobi remains a goal for the action of going, and thus a motive for the agent.

3.2. Assistance. The second kind of contribution to the event is the role of something that *assists* or facilitates the occurrence. In (17) are several examples of verbs with instruments commonly associated with them.

(17) katia kisu 'cut with a knife'
pikia jiko-ni 'cook on a stove'
andikia kalamu 'write with a pen'

Sentence (18), taken from a short story, is an unusual example. The sentence is 'he gets the money-IE without trouble'. The IE here adds an instrumental role as if it were 'he gets money by means of no trouble'.

(18) a-na-zi-pat-ia pesa bila taabu
S(he)-Pres-0(money)-get-IE money without trouble
'he can get money without difficulty

The minimal pair of sentences in (19a) and (19b) illustrates the subtle borderline between a place that provides assistance to precipitation of the occurrence and a place that is simply the location of the event.

(19) a. a-li-kufa bahari-ni 'he died at sea'
S(he)-Past-die sea-Loc
b. a-li-f-ia bahari-ni 'he perished at sea'
S(he)-Past-die-IE sea-Loc

In (19a) we find 'my father died sea-place' and in (19b) we find 'my father died |E sea-place'. The second sentence is best translated into English as 'he perished at sea'. But notice that one only perishes in dangerous places—at sea, in wars or in plagues—not, for example, in a bed. That is, the contribution of |E here is to imply that the sea bears some responsibility for the death of the father.⁶

3.3. Respondent. The third class of participant roles signified by the applied form is that of a *respondent*, that is, a party that responds to the lexically defined action and is influenced significantly by it. For example, in (20) 'he has been died-to by his father' might also be coarsely glossed as 'he is responding to his father's death'.

- (20) a-me-f-i-wa na babake
 S(he)-Compl-die-|E-Pass by his-father
 Lit: 'he has been died-to by his father'
 'he's in grief over his father's death'

The applied suffix claims there is an additional participant in the dying. It is inferred to be the grieving relative. Of course, the sentence could also be interpreted in the appropriate context as 'his father died for him' where the son is now a beneficiary. The morphology will not distinguish these two, only the context in which the utterance occurs. The |E suffix is coherent with both interpretations. Sentence (21) is interesting because 'stealing' can have two very different kinds of additional roles besides the necessarily implied role of the stealer and the stolen.

- (21) a-li-wa-ib-ia watoto chakula
 S(he)-past-0(children)-steal-|E children food
 'he stole the children's food' or 'he stole food for the children'

|E can be used to add either the aggrieved party that is robbed (a respondent) or a beneficiary that one might steal for. Again only context will de-

⁶Notice that the 'sea' in examples like (19a) plays a double role in the sentence: it is both a locative and an implied participant in the action (similarly also examples (22) and (23)). This calculated duplicity would not be possible in a case language like Latin or Russian where one must choose

termine the interpretation of the role in such a sentence. The ambiguity is not in the meaning of IE, but rather in the lexical meaning of 'steal'. It is a kind of event that invites several roles beyond those of the thief and the loot.

3.4. Location. The final class of messages for the applied suffix are cases where the additional role is not in any sense a contributor to the activity in the event. It is simply the *place* or time when it occurred. Of course, places would not normally be thought of as playing a role in an event. But a place can be said to play a role if it is particularly prominent in the message. For example the sentence in (22) is taken from a story about man-eating lions.

- (22) simba wa-li-m-l-ia karibu na kambi
 lions S(they)-Past-0(him)-eat-IE nearby to camp
 'the lions ate him near the camp'

Under normal circumstances the applied form of *la* 'eat' would not be used just to introduce the place of eating. This is a special case, however, because people were listening to the lions crunch the bones of a comrade. Although (22) might still be interpreted instrumentally (since they use the place for eating), the next example shows clearly that the place need not contribute to the event either as a means or goal in order to be marked with IE.

- (23) babake a-li-f-ia miono-ni mwake
 his-father S(he)-Past-die-IE arms-Loc his
 'his father died in his arms'

The place of dying is, of course, highly significant to the message, but the son's arms are neither a goal nor a "reason why". Thus they do not contribute to the dying at all. Instead, this role-adding suffix seems to be employed here on an intransitive verb (where misinterpretation is less likely) primarily for comment on the relevance of the location to the events occurring there.

either a locative case or a participant case for each noun. In Swahili, the verb suffix only adds a role to the event without indicating which noun plays that role.

4. Distributional Constraints

A survey of texts reveals that all of the productive instances of the applied form seem to be sortable (but not always uniquely) into one of these four classes of messages: a motivation for the agent, an instrument of the agent, a respondent to the action, or a prominent place of the action. One reason for going a step further and postulating a single underlying abstract meaning for these four "uses" is the distributional fact that productively a given verb can only take a single applied suffix. Thus, sentences like (24) are universally rejected.

- (24) *a-li-m-kat-i-lia Juma nyama (kwa) kisu
 S(he)-Past-O(him)-cut-IE-IE Juma meat (with) knife
 'he cut Juma meat with a knife'

Here, I tried to combine two IE suffixes, one for the indirect object and one for the instrument. If these two were grammatically distinct but homophonous suffixes, we might expect that they could be combined just like the applied suffix and the causative suffix -lisha combine to form -lishia as in (25).

- (25) Juma a-li-m-pik-ish-ia Hassan chakula kwa jiko lile
 S(Juma)-past-O(Hassan)-cook-causative-IE Hassan food with stove that
 'Juma had Hassan cook food on that stove'⁷

The impossibility of (24) in the face of (25) further suggests that both the instrumental and beneficiary messages are interpretations of a single IE form. The only cases in which multiple suffixes resembling IE can occur (in (6) to (10) above) are those where one or both are actually lexical relics, an analysis further supported by the generally idiosyncratic meanings of the relic suffixes.

Yet if there is only a single abstract meaning for the productive uses of this suffix, how do listeners know whether the message should be one of, say, a goal, instrument, or beneficiary? The answer has to be that the lexical meanings of the nouns and verbs in the sentence as well as the context of

⁷This sentence sounds much better to northern coastal speakers, of course, than to Tanzanians. See footnote 3.

communication lead listeners to jump to a coherent (and normally correct) interpretation (see García [1975]). In general, there is only one possible interpretation, but whenever the additional role could be interpreted in two different ways (due, perhaps, to minimal context), then the sentence will be "ambiguous" just as several of our examples have been.

5. Conclusions

It has been proposed that there are both distributional and semantic reasons for postulating a single productive applied suffix in Swahili. It is possible to distinguish the grammatical form from the many competing homophones with respect to both the meaning and the possibility of adding the IE suffix. Our analysis stems from the assumption that much of the character of languages is determined by the fact that they are communication devices for which invariant signal-meaning correspondences would be highly functional. Although a number of lexicalized and derivational exceptions muddy the waters, a search for productive and invariant correspondence permitted isolation of the exceptions on principled grounds.

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NOTES AND QUERIES

This section is for short remarks on articles dealing with African languages which have appeared in *Studies in African Linguistics* or elsewhere and for contributions which are too short to constitute full articles. These may be short descriptive or historical statements of interesting phenomena in African languages or theoretical comments utilizing African language data.

Contributions to "Notes and Queries" should be less than 1000 words, including examples. No footnotes should be used, but references may be listed at the end.

PROMINENCE IN NGAMBAY

Ursula Wieseemann and Noël Djemadjouidjiel
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Ngambay, a Nilo-Saharan language spoken in Chad (as well as in the Central African Republic) has a well structured set of morphemes which are used to add prominence to certain elements of a predication. This set consists of the deictic particles *gə*, *ḅá*, and *yáá*, all of which could be translated as 'that'. They give, however, quite different kinds of prominence to the words (or expressions) they follow. Following the terminology suggested by John Watters ("Focus in Aghem," in Larry M. Hyman (ed.), *Aghem Grammatical Structure*, Southern California Occasional Papers in Linguistics No. 7, Los Angeles: University of Southern California, 1979) their differences in meaning can be explained as follows:

Simple Assertive Focus *gə*

The particle *gə* indicates facts from which consequences result. It also has anaphoric function, linking the focused element to a previous mention. The simple assertion

(1) *Láwkúrá tɔ́ dògè* 'Lawkura killed a buffalo'

can be transformed into

- (1) a. *Láwkúrá gə tɔ́ dògè* 'it was (the already mentioned) Lawkura who killed a buffalo'
b. *dògè gə Láwkúrá tɔ́* 'it was the (already mentioned) buffalo that Lawkura killed'
c. *tɔ́ gə Láwkúrá tɔ́ dògè* 'Lawkura killed a buffalo (and the following is the result of this killing)'

Notice that the focused element is always front shifted, which necessitates the verb to be repeated when it is in focus position.

Exhaustive Listing Focus *ḅá*

The particle *ḅá* puts the focused element into a class all by itself, in contrast to all the other elements that could normally be compared with it. The simple assertion (1) can be transformed into

- (2) a. *Láwkúrá ḅá tɔ́ dògè* 'it was Lawkura (not John, nor Peter, it was no other than Lawkura) who killed a buffalo'

- b. d̀̀g̀̀è b́́á Ĺ́áwkúrá t̄t̄l̄ 'it was a buffalo (not an antelope, nor a rabbit, it was no other than a buffalo) that Lawkura killed'
- c. t̄t̄l̄ b́́á Ĺ́áwkúrá t̄t̄l̄ d̀̀g̀̀è 'it was killing (not wounding nor seeing, it was really killing) that Lawkura did to the buffalo'

Counter-Assertive Focus ỳ̀áá

The particle ỳ̀áá indicates that whatever is asserted about the focalized element is in contrast to what was to be expected. So the simple assertion (1) can be transformed into

- (3) a. Ĺ́áwkúrá ỳ̀áá t̄t̄l̄ d̀̀g̀̀è 'Lawkura (the fearful, or the tiny, or the old one) killed a buffalo'
- b. d̀̀g̀̀è ỳ̀áá Ĺ́áwkúrá t̄t̄l̄ 'it was a buffalo (that strong, wicked, huge animal) that Lawkura killed'
- c. t̄t̄l̄ ỳ̀áá Ĺ́áwkúrá t̄t̄l̄ d̀̀g̀̀è 'it was killing (an exceedingly difficult task) that Lawkura did to the buffalo'

Defocalization

Another syntactic means of achieving prominence is to defocalize some elements of the predication, with the effect that the non-defocalized elements receive prominence without any further marking. Such defocalization is done by substituting a generic term for a specific one, or by the deletion of one of the elements, or by applying both transformations at the same time. The simple assertion (1) can be transformed into

- (4) a. Ĺ́áwkúrá t̄t̄l̄ d̄́ 'Lawkura killed an animal'

Here d̀̀g̀̀è 'buffalo' is substituted by d̄́ 'animal', with the result that the agent receives prominence.

- (4) b. t̄t̄l̄ d̀̀g̀̀è 'someone killed a buffalo'

The agent Ĺ́áwkúrá is deleted, and d̀̀g̀̀è 'buffalo' receives prominence.

- (4) c. t̄t̄l̄ d̄́ 'someone killed an animal'

By deleting the agent and replacing the specific d̀̀g̀̀è 'buffalo' by the generic d̄́ 'animal', the act of killing is the only definite information of this predication and therefore has prominence.

EVIDENCE FOR OBJECT-VERB ORDERING IN CHADIC

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In his 1979 book, Givón sets forth the claim that SOV is the universal word order. He says,

It seems that the majority of language families known to us exhibit SUBJECT-OBJECT-VERB (SOV) syntax, and so far as one can tell they were always SOV... The overwhelming majority of languages and language families which do not show actual SOV syntax currently, can be nevertheless reconstructed via internal and comparative methods back to an earlier SOV stage. In other words, either their syntax or—at the very least—their bound morphology exhibit coherent relics of the earlier SOV stage ... (p.275)

Regarding Afro-Asiatic languages particularly he says in a footnote to the above: "Kushitic is SOV and Semitic can be reconstructed to SOV. The entire Afro-Asiatic group must have been SOV, as a detailed analysis of the bound morphology [of] Chadic, Berber, and Old Egyptian is bound to show." This note presents evidence of OV ordering in Angas morphology as a step toward providing the Chadic evidence.

The unmarked ordering of constituents in the Angas clause is SVO. Note the following examples:

- | | | |
|-----|--------------------------------|---------------------|
| (1) | Musa sit as
buy dog | 'Musa bought a dog' |
| (2) | Musa ne shwe
see corn | 'Musa saw the corn' |
| (3) | Musa kat mbandar
get basket | 'Musa got a basket' |

In addition, the two most productive patterns of nominalization show the verb preceding the object. In the first of these the initial noun (comparable to the clause-level subject) occurs obligatorily with low tone, and the verb is in its verbal noun form:

- | | | |
|-----|--|------------------|
| (4) | ngò karm nap
person slaughtering animal | 'butcher' |
| (5) | mbì cək shwe
thing beating corn | 'threshing tool' |

- (6) yèn pən nkam 'tonic'
 medicine giving health

In the second productive nominalization pattern no subject occurs; the verb occurs first and is in the verbal noun form, and it is joined to the following object by the morpheme kə 'of':

- (7) dyip kə shwe 'harvesting'
 harvesting of corn
- (8) ten kə nfutat 'sewing'
 sewing of cloth
- (9) shwe kə mbandar 'basket-weaving'
 weaving of basket

Both of these patterns are currently productive, and the examples can be expanded readily.

In contrast to the above constructions, which illustrate the current SVO order, there are two types of apparently non-productive nominalization in which the relevant order is OV. Such non-productive patterns are potential evidence for an earlier ordering, as Givón claims. In the first type there is a characteristic tone pattern of low tone obligatorily occurring on the verb. The following is the entire inventory of such forms known to me:

- (10) shwe-dyìp 'harvesting'
 corn-harvest
- (11) dō-lè 'shouting'
 voice-raise
- (12) shət-cèn 'working'
 work-do
- (13) kok-tù 'playing'
 game-play
- (14) yəl-sè 'gratitude'
 earth-eat
- (15) shək-tòk 'message'
 word-speak
- (16) ke-bàm 'rescue'
 head-snatch
- (17) pi-dùr 'command'
 place-command
- (18) po-lèng 'argument'
 mouth-think

In the second non-productive pattern the verb occurs in its verbal noun

form, and the preceding noun object occurs with obligatorily low tone. All examples known to me have the generic mbì as the noun object:

- | | | |
|------|------------------------------|---------------|
| (19) | mbì-se
thing-eating | 'food' |
| (20) | mbì-dyìp
thing-harvesting | 'harvest' |
| (21) | mbì-kat
thing-getting | 'wealth' |
| (22) | mbì-kop
thing-planting | 'crop' |
| (23) | mbì-sit
thing-selling | 'merchandise' |

We see, then, that although SVO is the pattern of ordering in the clause and in productive nominalization in Angas, there is evidence for OV ordering in non-productive nominalization patterns. This data thus provides a beginning body of evidence for object-verb ordering in Chadic, as Givón predicted would be found.

REFERENCE

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TWELFTH CONFERENCE ON AFRICAN LINGUISTICS

Stanford University

April 10-12, 1981

Friday, April 10

Morning

SYNTAX AND SEMANTICS

- S. Stucky, "Word order freedom and the status of the verb phrase in Makua"
J. Timyan, "A semantic model of quantification: evidence from Baule"
S. Mchombo, F. Moto, "Tone and the theory of syntax"
G. Rugege, "On the infinitive in Kinyarwanda"
C.H. Scotton, "Rethinking inalienable possession: the extensive role"
R.G. Schuh, "Types of genitive constructions in Chadic"

Afternoon

SESSION A: HAUSA AND CHADIC

- B. Chorier & N. Faraclas, "A closer look at high short vowels in Hausa"
L. Tuller, "Vowel neutralization in Hausa: accounting for predictable unpredictability"
R.M. Newman and Vincent J. van Heuven, "An acoustic and phonological study of pre-pausal vowel shortening in Hausa"
P. Jaggar, "Varieties of passive in Hausa"
E. Wolff, "Biu-Mandara vowel systems and Chadic reconstructions"
Z. Frajzyngier, "Direct and indirect object pronouns in Chadic"

SESSION B: SWAHILI

- U. Gusa, "The ethnic factor in language nationalization—the future of Kiswahili in Kenya"
R.A. Jalbert, "Language as expressive of cultural values and priorities"
M. Hauner, "Kiujamaa—notes on politicized language"

Evening

FORMAL TREATMENT OF BANTU PROSODY

- L.M. Hyman, "The accentual treatment of tone in Eastern Bantu"
G.W. Clements, "The syllable in Luganda"
C.-C. Cheng & C.W. Kisseberth, "High tone doubling in two Makua dialects"

- D. Odden, "A nonlinear approach to vowel length in Kimatuumbi"
 J. Goldsmith, "Accent in Tonga"

Saturday, April 11

Morning

PHONOLOGY

- A. Traill, "Khoisan consonants and phonological universals"
 B. Elimelech, "On the representation of voiceless vowels"
 I. Maddieson, "Unusual consonant clusters and segments in Eggon"
 G. Herault, "L'information ségmentale nécessaire à l'élaboration des règles tonales de l'Adioukrou"
 J. Kaye, "Implosives as liquids"
 J.V. Singler, "The phonology of negation in Liberian English"
 O.D. Gensler, "The representation of vocalic object-affixes and tense-affixes in the Bakweri verb"
 R.P. Shaefer, "A proposed structure for a strengthening process in Tswana"
 H.C. Capo, "Sibilantization in Gbe"
 J. Kaye & M. Charette, "A tone-sensitive rule in Dida"

Afternoon

SYNTAX

- L.M. Hyman & B. Comrie, "Logophoricity in Gokana"
 J. Hutchison, "Determiners and relative words in SOV relative constructions"
 J.R. Cowan, "The syntax of Baka and Kresh"
 Isaac George Madugu, "Complex verbs in Nupe and Yoruba and the topicality hierarchy"
 S.A. Ekundayo, "Yoruba serial verb string commutability constraint"
 O. Oyelaran, "On the scope of the serial verb construction in Yoruba"
 L.N. Omoni, "Serial verb construction in Dholuo—a transformational analysis"
 A. Kimenyi, "Linkless clauses in Bantu"
 M. Onwuemene, "Arvee - three: the meaning of an Igbo verbal suffix"

Sunday, April 12

HISTORICAL MORPHOLOGY AND PHONOLOGY

- J.H. Greenberg, "Nilo-Saharan 'moveable k- ' as a stage III article"
 J.M. Hombert, "From Proto-Benue-Congo to Proto-Bantu noun classes: the Beboid connection"

B. Wald, "The evolution of na and related markers in the N.E. Bantu tense system"

SOCIOLINGUISTICS AND DISCOURSE

C.M. Eastman, "Kenyan Swahili diglossia: some language policy implications"

R. Finlayson, "Hlonipha - women's language of avoidance among the Xhosa"

E. Ubahakwe, "The choice of a standard literary dialect: a preliminary report on Igbo language"

B. Forson, "Phonological regularities in Akan-English code-switching"

PUBLICATIONS RECEIVED

Books

Hyman, Larry M. (ed.). *Noun Classes in the Grassfields Bantu Borderland*. SCOPIL, No.8. Los Angeles: University of Southern California, 1980. \$4.00.

The volume comprises "ten studies on the noun class systems of a variety of Grassfields and near-Grassfields Bantu languages and their relatives." The studies are Robert Hedinger, "The noun classes of Akóṣṣē (Bakossi)"; Larry M. Hyman, "Esquisse des classes nominales en Tuki"; Stephen C. Anderson, "The noun classes of Ngyemboon-Bamileke"; Jan Voorhoeve, "Noun classes in Adere"; Marie Anne Boum, "Le groupe Menchum: morphologie nominale"; Jean-Marie Hombert, "Noun classes of the Beboïd languages"; John R. Watters, "The Ejagam noun class system: Ekoid Bantu revisited"; Kenneth L. Stallcup, "Noun classes in Esimbi"; Stephen C. Anderson, "The noun class system of Amo"; Larry M. Hyman, "Reflections on the nasal classes in Bantu".

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USA

Hammandikko, Musa Wawu na and Marla Berns. *History of Ga'anda/Tarihin Ga'an-da*. Occasional Paper No.21. Los Angeles: African Studies Center, University of California, 1980. \$3.50.

This volume is an oral history of the Ga'anda, a Chadic language-speaking people of Gongola State, Nigeria. The volume includes both an English translation and the original Hausa text, followed by a King list in Hausa and English, and a text in Ga'anda (with English and Hausa translation) on the Fulani. Write to

African Studies Center
UCLA
Los Angeles, CA 90024
USA

Nougayrol, Pierre. *Le Day de Bouna (Tchad)*. Bibliothèque de la SELAF, 71-72. Paris: SELAF, 1979.

Day is a language of the Adamawa-Ubangui group of the Kongo-Kordofanian family. The present study deals exclusively with the Day spoken in the region of Bouna (Bara I Canton). The first part is a detailed phonology treating consonants, vowels, tones, and combinations of phonemes. The second part brings together two levels of analysis normally consid-

ered separately, syntax and lexicon. The syntax of determination in the noun phrase (including the relative clause) is described, followed by the processes of word formation, including composition and derivation.

Thomas, Jacqueline M.C. and Anne Behaghel (eds). *La linguistique africaniste française (en France et en Afrique)*. SELAF 11, Numéro spécial. Paris: SELAF, 1980.

This is a summary of French research in African languages including areas of research, languages studied, linguistic study centers, and African linguistic teaching and directed research. The volume concludes with a list of journals and collections touching in this research area.

For the latter two publications, write to

SELAF
5, rue de Marseille
75010 Paris
FRANCE

New Journals

Annales Aequatoria, edited by A. Claessens and H. Vinck, Mbandaka, Zaire.
Volume 1, 1980. 250 FB.

The purpose of this journal is to "promote scientific research in matters of Zairian cultures, history, and languages." The first volume comprises two fascicles presented to R.P.G. Hulstaert on his 80th birthday. The first fascicle is a collection of papers, mainly ethnographic and historical, the second a catalogue of the Bibliothèque Aequatoria in Bamanya. Write to

Annales Aequatoria
B.P. 1064
Mbandaka
ZAIRE

Language and Development: An International Perspective, edited by Eyamba G. Bokamba and Braj B. Kachru, Department of Linguistics, University of Illinois. Number 1, Fall 1980. \$2.00 per issue.

This newsletter has as its purpose "to serve as a vehicle for the exchange of ideas, information, and research findings" on the role of language and applied linguistics. The first number contains the following articles: Hassan Marshad, "On developing a scientific register: the case of Swahili in Kenya"; J Ronayne Cowan, "Literacy in Southern Sudan"; John Kalema, "The inter-African bureau of languages: a progress report"; Elmer H. Antonsen, "Language standardization in German urban society"; Chin-Chuan Cheng, "Another step in language planning in China"; Eyamba G. Bokamba, "Language and national development: black Eng-

lish in America". There are also several book reviews and notices.

Write to

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